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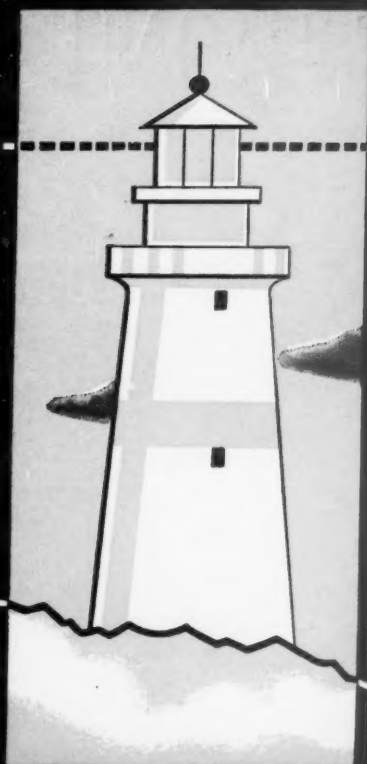
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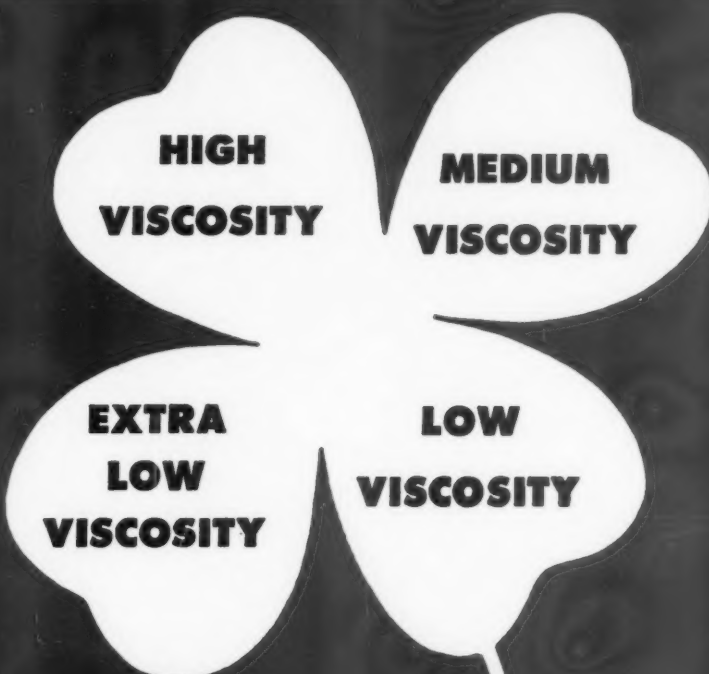
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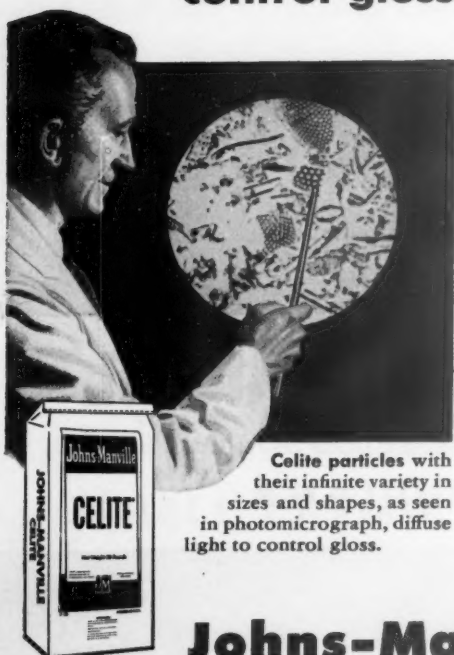
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Celite pigments also help solve another problem that troubles latex paint manufacturers—*adhesion*. The barbed-edge particles project through the paint film to bite into both bare surfaces and subsequent coats. And their porous structure forms a permeable film that permits faster escape of volatiles for speedier drying. Celite can frequently be used as a replacement for some of the costly prime pigment, thanks to its extra dry hiding power.

Write today for complete information on Celite diatomite pigments. Address Johns-Manville, Box 60, New York 16, N. Y. In Canada, 565 Lakeshore Road East, Port Credit, Ontario.



*Celite is Johns-Manville's registered trademark for its diatomaceous silica products

Johns-Manville CELITE THE EXTENDER PIGMENTS
FOR ALL COATINGS

PAINT and VARNISH

NEXT ISSUE

The June issue will begin a series of articles describing the effect of the particle size distribution and pigment volume concentration of Kaolinite extender pigments on some important properties of butadiene-styrene copolymer latex paints, polyvinyl acetate emulsion paints, acrylic emulsion paints, and paints based on a semi-gloss oleoresinous vehicle.

The proper use of extender pigments is one of the most important phases of formulating with the new synthetic resin emulsion vehicles and the data presented in this paper will aid the formulator in selecting the grade of Kaolinite which will best suit the needs of the specific formulation problem.

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MAY, 1955

NO. 6

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Marketing Research Pays Off

ONE of the misconceptions regarding marketing research is that this particular service is beneficial only to the large manufacturer with national distribution. Oftentimes the small firm feels that, because of prohibitive costs involved in such a service, it can get along without market facts and relies on a hunch or instinct to enter a new venture. Such an approach is risky and can often spell disaster. Much of this risk can be removed by first securing the facts about the size of the market and about the kind of product wanted before engaging in manufacture. The collection and appraisal of these facts is known as marketing research and offers the best approach for insuring a sound business decision.

The small firm may contend that, since they sell only a few products within a limited territory, it doesn't become involved with the many and complex marketing problems facing the large manufacturer having national distribution. This may be true to a certain extent, but, generally speaking, small firms cannot afford to have a staff of high-priced personnel, each specializing in some phase of the company's marketing activity.

It is also true that certain basic marketing facts are readily available from the course of day-to-day operations such as the extent of the market, types of buyers and their locations, the firm's sales comparison with the total market, competitors' share of the market, competitors' means of getting business, rating of the product against competitors' by buyers and dealers, etc.

The answers to the above questions can be helpful, but are often inadequate in making a final major decision. This basic information in reality is the firm's business experience over the years.

The purpose of marketing research is to bring this vast amount of experience into proper focus by presenting these facts in an organized, systematic manner, thorough and objective.

Such problems as styles, color, packaging, selling price, confronting a manufacturer can be resolved to a great degree by marketing research. It may be applied to advertising and promotion, sales training, choosing a trade-name, means of distribution, establishing sales territories, etc.

But how can a small firm get this work done?

There are two approaches: a) by people within the firm, or b) by an outside organization. A word of caution for those who use the first approach. Unless individuals are specialized in the field of marketing and devote their full time to such problems, there is no point in having the job handled by individuals within the firm on a part-time basis. It cannot be done with "a lick and promise." Only the services of an expert will result in a sound decision.

Outside sources who can be relied upon to furnish expert advice on marketing problems are marketing research firms, consultants or advertising agencies.

Much helpful information which can be used to supplement marketing facts can also be obtained from Government agencies, trade associations, trade publications, universities and colleges.

With today's business moving at a fast and dynamic pace, it behooves any firm to keep a watchful eye on their marketing activities. New products are always being introduced; new competitors enter the scene; prices fluctuate; consumer attitudes change—all of which have a profound effect on a firm's marketing policy. How to cope with these developments and changes in your marketing plans can only be attained through a consistent marketing research program.

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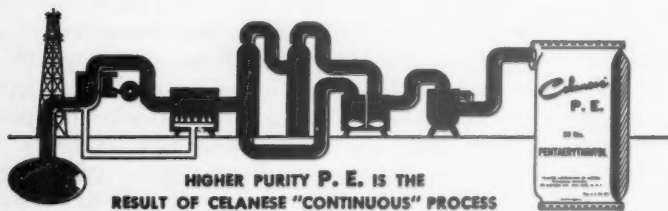


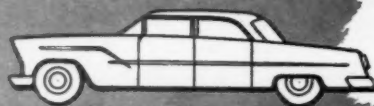
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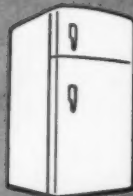
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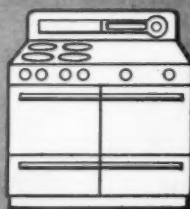




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VINYLS... on the march!

a series highlighting the growth of vinyl paints

New Bulletin on BULK HANDLING OF VINYL

Helpful information on the handling and storage of tank car quantities of vinyl resins has been prepared by National's engineering staff. Pumps, piping, tanks, valves and strainers are among the subjects discussed in detail. A diagram showing the flow of materials from tank car to paint tanks is also included. Be sure to write for your copy of the new bulletin.

INTERIOR WALL PAINTS AT COMPETITIVE COSTS WITH RESYN 12K-51

More and more paint manufacturers are basing interior flat wall paints on National's inherently flexible vinyl copolymer Resyn 12K-51. Improved film structure and film formation plus unusually high PVC and competitive raw material costs make this switchover especially attractive.

The new paints are quick drying and offer excellent color retention and scrubability. Their lack of odor adds further appeal to contractors and consumers.

Until recent months Resyn 12K-51 was used mostly as a base for primer sealers and exterior masonry paints. With its use growing for interiors, it now can be stocked in bulk as a vehicle for all three types of paints. This brings additional savings. Handling and inventory costs are reduced, and larger purchases can be made at quantity prices.

VINYL FILMS BEND OVER BACKWARD WHEN FORMULATED WITH RESYN 12K-51 Hexylene Glycol Gives Added Toughness

Where ordinary commercial PVAc films crack and lose adhesion, National's Resyn 12K-51 holds firm, even when bent over backward. New test results dramatize these differences. Possibilities for longer paint life and improved scrubability are more clearly evident than ever before.

National's paint chemists tested pigmented and unpigmented films. A typical commercial straight PVAc was compared with the inherently flexible Resyn 12K-51. All tests were run in duplicate.

Films of three mils wet thickness were applied on tin panels. These were aged for seven days at 120° F., approximating hot summer temperatures. Conditioning for two hours at 72° F. and 55% relative humidity followed. Then the panels were bent over an 1/8 inch mandrel. As the results below show, films were examined for cracks and loss of adhesion.









Two points deserve special attention:
• As many manufacturers have already verified, hexylene glycol further tough-

ens films of Resyn 12K-51. But even without it, as the test results demonstrate, Resyn 12K-51 is superior to post-plasticized straight PVAc.

• The flexibility of pigmented films more reliably indicates paint performance than the flexibility of unpigmented films. For example, the straight PVAc resin plasticized with 10% dibutyl phthalate showed excellent flexibility when unpigmented, but cracked badly and lost adhesion when pigmented. In contrast, Resyn 12K-51 films showed excellent flexibility before and after pigmentation.

For complete information on paints made from Resyn 12K-51, contact your nearest National laboratory or office. Formulating costs are lower due to higher pigment binding power.

COMPARATIVE FILM FLEXIBILITIES

UNPIGMENTED RESINS			
RESIN	ADDITIVE	FLEXIBILITY	
Straight PVAc	None		Panels 1 & 2 crack completely, lose adhesion
Straight PVAc	10% dibutyl phthalate		Panels 1 & 2 no failure
Resyn 12K-51	None		Panels 1 & 2 no failure
Resyn 12K-51	7.5% hexylene glycol		Panels 1 & 2 no failure
PAINTS (National's Formula E404, 35% PVC)			
RESIN	ADDITIVE	FLEXIBILITY	
Straight PVAc	None		Panels 1 & 2 crack, lose adhesion
Straight PVAc	10% dibutyl phthalate		Panels 1 & 2 crack, lose adhesion
Resyn 12K-51	None		Panel 1 no failure Panel 2 very slight crack
Resyn 12K-51	7.5% hexylene glycol		Panels 1 & 2 no failure

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National
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as a replacement for dibutyl phthalate

- lower cost
- better flexibility at low temperatures
- low specific gravity
- good emulsion stability

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Investigate the advantages of di-isobutyl phthalate. Call your nearest Eastman sales office or write to Eastman Chemical Products, Inc., Chemicals Division, Kingsport, Tennessee to learn how to lower your costs by using this economical Eastman plasticizer.

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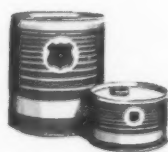
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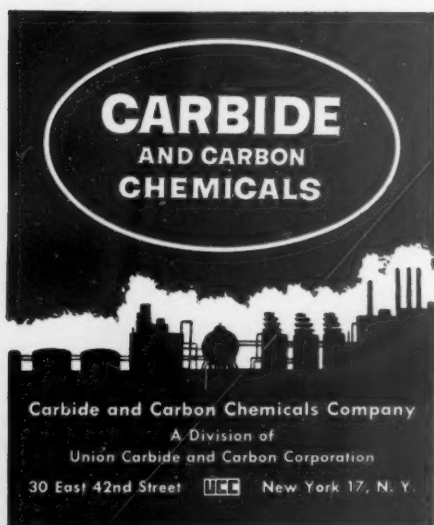


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For Further Information

on ethyl acetate or isopropyl acetate, ask your nearest CARBIDE office for the book "Esters" (F-4766). If you want information on all of CARBIDE's solvents and plasticizers useful in lacquers ask for "Solvents" (F-7465). In Canada: Carbide Chemicals Sales Company, Division of Union Carbide Canada Limited, Toronto.



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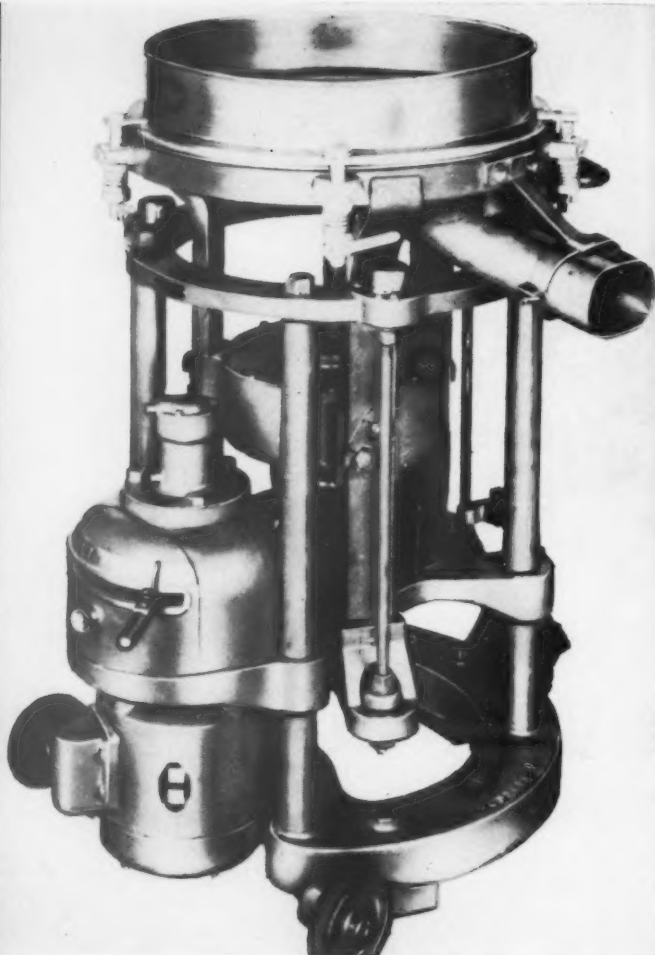
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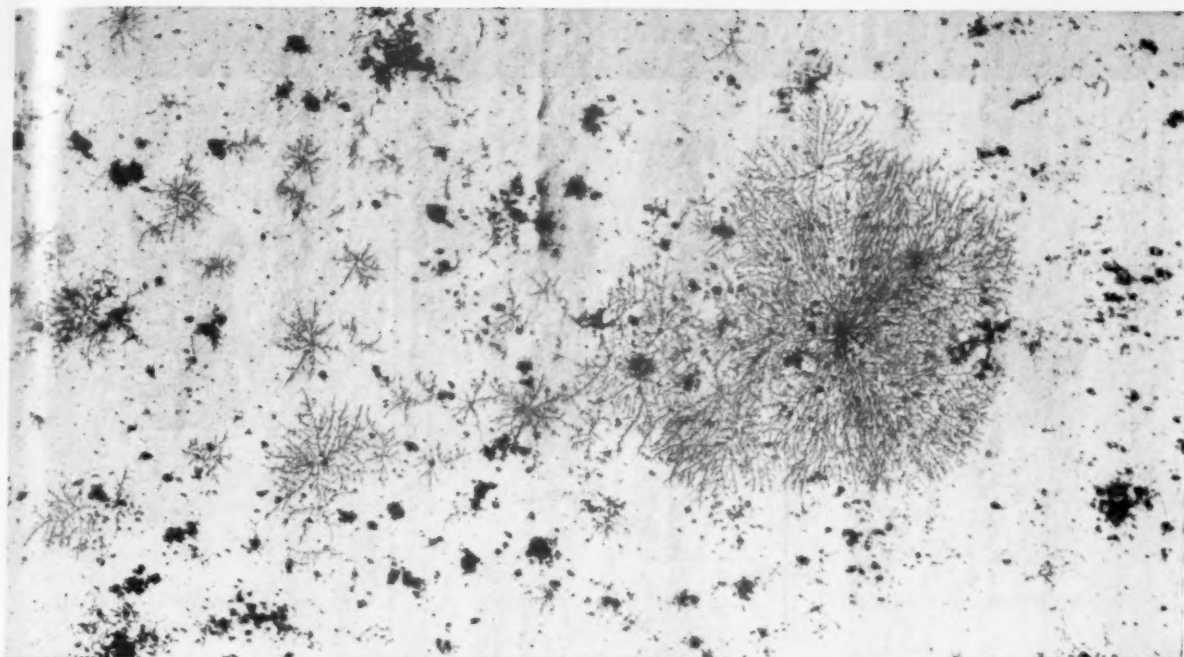
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TEN DIAMETER PHOTOGRAPH OF MILDEW AT NEW ORLEANS TEST SITE

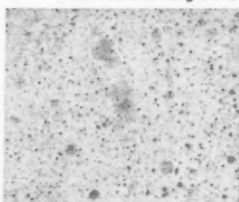
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* Formulation of Leaded Zinc Oxide Paint Used in Test

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TiO ₂ —Anatase.....	15.0	Z-3 Linseed Oil.....	19.5
Magnesium Silicate.....	35.0	Mineral Spirits.....	18.2
	100.0%	24% Pb.....	1.3
		6% Co.....	.5
		PVC—32.0%	100.0%



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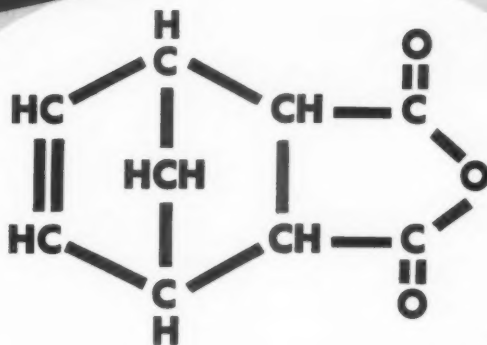
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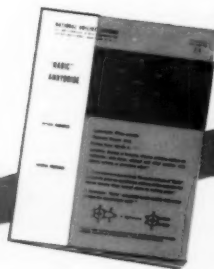


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By

Test rack at Sayville, N. Y.

Charles E. Cherry, Jr.

THE problems encountered in the painting of galvanized iron and steel have centered about difficulties with adhesion of the paint film. The sight of paint peeling off galvanized surfaces in large sheets has been a common and, to the paint man, a painful one. The most commonly accepted reason for this irksome phenomenon is that a reaction occurs between the paint film and the galvanizing, forming products that adversely affect adhesion. Good results in improving adhesion have been obtained by weathering the surface before painting, for periods of three to six months and longer. Supposedly, the weathering washes away oils and greases which are a residue of the fluxing materials used in hot dip galvanizing and it produces a roughening effect on the galvanizing. But this practice introduces another factor: rusting has often already commenced when the painting is done. Chemical pretreatment is

Red Lead Systems

Although red lead primers have been adapted to a multitudinous variety of services over the years, little work has been done, until recently, on the development of red lead paints particularly suited to service over galvanized surfaces. About three years ago the Red Lead Technical Committee of the *Lead Industries Association* undertook the investigation of numerous experimental coatings for this purpose. Both rusted and new galvanized surfaces were coated in the tests and, because of aptness to the program, also aluminized steel. From the results of two years exposure, the Committee believes that the five formulations given below are superior for service on galvanized. The paints are versatile in that they serve as active anti-corrosive paints for galvanized surfaces which are already rusted from weathering or they serve as protective coatings for new galvanized

Rusted Galvanized Panels

3	2
4	1
5	

AREA	SYSTEM
1	1 Primer Coat
2	2 Primer Coats
3	2 Primer Coats 1 Finish Coat
4	1 Primer Coat 1 Finish Coat
5	1 Finish Coat

Paint system for various areas of rusted galvanized panel.

another method that can be successful. In either case it is evident that paints specifically suited to galvanized surfaces are necessary.

*Mr. Cherry is connected with Lead Industries Association, 420 Lexington Ave., New York 17, N. Y.

New Galvanized and Aluminized Steel

2 Primer + 1 Finish	(1) (2) (3) = Chem. Treat.
(6)	(3)
1 Primer + 1 Finish	(4) (5) (6) = No. Treat.
(5)	(2)
1 Primer	(1)
(4)	(1)

Paint system for various areas of new galvanized and aluminized steel panel

ized metal which has been properly treated.

The panels selected for the rusted surface portions of the test were 22 gauge galvanized steel, approximately 50% of whose surfaces was rusted. They were divided into five areas which received systems of one and two primer coats with and without top

FORMULA A

	Composition	Percent	Pounds	Gallons
PIGMENT:	Red Lead, 97% Grade.....	30.0	591.0	8.0
	Siliceous Iron Oxide, 85% Fe ₂ O ₃	15.0	295.0	8.0
	Aluminum Stearate.....	0.5	9.8	1.2
	*Zinc Dust (Fed. Spec. TT-Z-291).....	54.5	1070.0	18.2
		100.0		
VEHICLE:	Raw Linseed Oil.....	49.0	241.0	31.1
	Alkyd Resin Solution (Fed. Spec. TT-R-266, Type I, Class A).....	34.2	168.0	21.3
	Mineral Spirits.....	15.5	76.1	11.7
	Lead Naphthenate (24%).....	0.9	4.4	0.5
	Cobalt Octoate (6%).....	0.4	2.0	0.3
		100.0	2457.3	100.3

Pigment = 80%

Vehicle = 20%

Wt./Gal. = 16.9 lbs (without zinc dust)

PV = 43.3

*Zinc dust is to be packaged separately and mixed with paint at time of use.

FORMULA B

	Composition	Percent	Pounds	Gallons
PIGMENT:	Red Lead, 97% Grade.....	30.0	387.0	5.2
	Siliceous Iron Oxide, 85% Fe ₂ O ₃	15.0	193.0	5.2
	Aluminum Stearate.....	0.5	6.5	0.8
	*Zinc Dust (Fed. Spec. TT-Z-291).....	54.5	705.0	12.0
		100.0		
VEHICLE:	Alkyd Resin Solution (Fed. Spec. TT-R-266, Type I, Class A).....	65.0	367.0	46.5
	Mineral Spirits.....	34.2	193.0	29.7
	Lead Naphthenate (24%).....	0.57	3.3	0.3
	Cobalt Octoate (6%).....	0.23	1.3	0.2
		100.0	1856.1	99.9

Pigment = 69.6%

Vehicle = 30.4%

Wt./Gal. = 13.1 lbs. (without zinc dust)

PV = 43.5

*Zinc dust is to be packaged separately and mixed with paint at time of use.

FORMULA C

	Composition	Percent	Pounds	Gallons
PIGMENT:	Red Lead, 97% Grade.....	40.0	712.0	9.6
	Chromium Oxide.....	19.5	348.0	8.2
	Aluminum Stearate.....	0.5	9.0	1.1
	*Zinc Dust (Fed. Spec. TT-Z-291).....	40.0	712.0	12.1
		100.0		
VEHICLE:	Raw Linseed Oil.....	47.8	249.0	32.2
	Alkyd Resin Solution (Fed. Spec. TT-R-266, Type I, Class A).....	34.2	178.0	22.5
	Mineral Spirits.....	17.2	89.5	13.8
	Lead Naphthenate (24%).....	0.58	3.2	0.3
	Cobalt Octoate (6%).....	0.22	1.2	0.2
		100.0	2301.9	100.0

Pigment = 77.4%

Vehicle = 22.6%

Wt./Gal. = 18.1 lbs. (without zinc dust)

PV = 39.8

*Zinc dust is to be packaged separately and mixed with paint at time of use.

FORMULA D

	Composition	Percent	Pounds	Gallons
PIGMENT:	Red Lead, 97% Grade.....	50.0	1007.0	13.6
	Aluminum Stearate.....	0.5	9.9	1.2
	*Zinc Dust (Fed. Spec. TT-Z-291).....	49.5	997.0	17.0
		100.0		
VEHICLE:	Raw Linseed Oil.....	46.5	238.0	30.7
	Alkyd Resin Solution (Fed. Spec. TT-R-266, Type I, Class A).....	32.75	168.0	21.3
	Mineral Spirits.....	19.50	101.0	15.5
	Lead Naphthenate (24%).....	0.87	4.5	0.5
	Cobalt Octoate (6%).....	0.38	2.0	0.3
		100.0	2527.4	100.1

Pigment = 79.7%

Vehicle = 20.3%

Wt./Gal. = 18.4 lbs. (without zinc dust)

PV = 41.4

*Zinc dust is to be packaged separately and mixed with paint at time of use.

FORMULA E

	Composition	Percent	Pounds	Gallons
PIGMENT:	Red Lead, 97% Grade.....	50.0	719.0	9.7
	Aluminum Stearate.....	0.5	7.0	0.8
	*Zinc Dust (Fed. Spec. TT-Z-291).....	49.5	712.0	12.1
		100.0		
VEHICLE:	Alkyd Resin Solution (Fed. Spec. TT-R-266, Type I, Class A).....	67.7	388.0	49.1
	Mineral Spirits.....	31.42	180.0	27.7
	Lead Naphthenate (24%).....	0.63	3.6	0.4
	Cobalt Octoate (6%).....	0.25	1.4	0.2
		100.0	2011.0	100.0

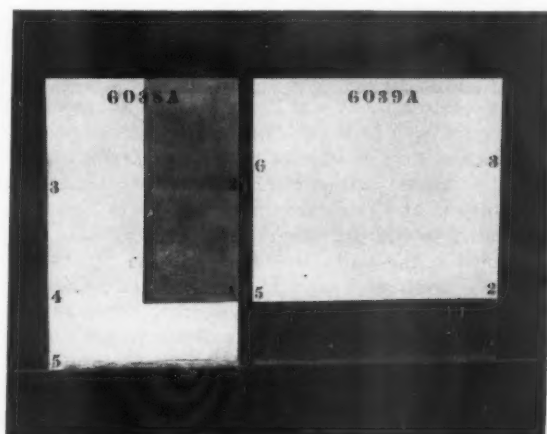
Pigment = 71.5%

Vehicle = 28.5%

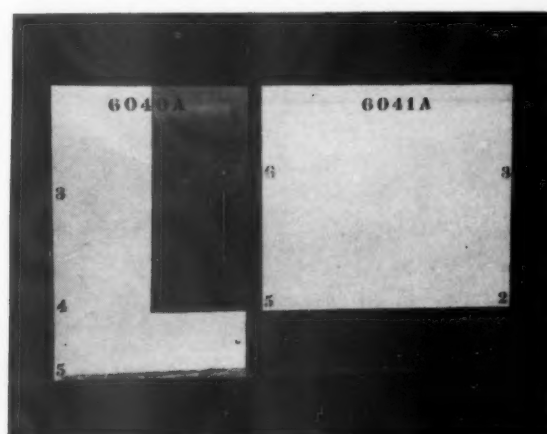
Wt./Gal. = 14.8 lbs. (without zinc dust)

PV = 41.5

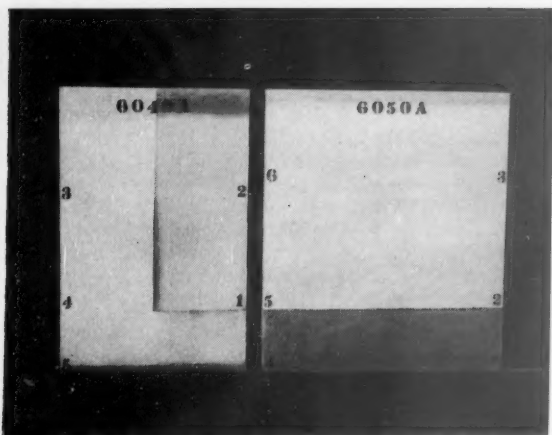
*Zinc dust is to be packaged separately and mixed with paint at time of use.



Formula A—Rusted panel, left; new panel, right; 36 months exposure. This is a linseed oil-alkyd resin vehicle type recommended for use where no additional coating is to be applied. Note excellent performance even over untreated area of new panel.

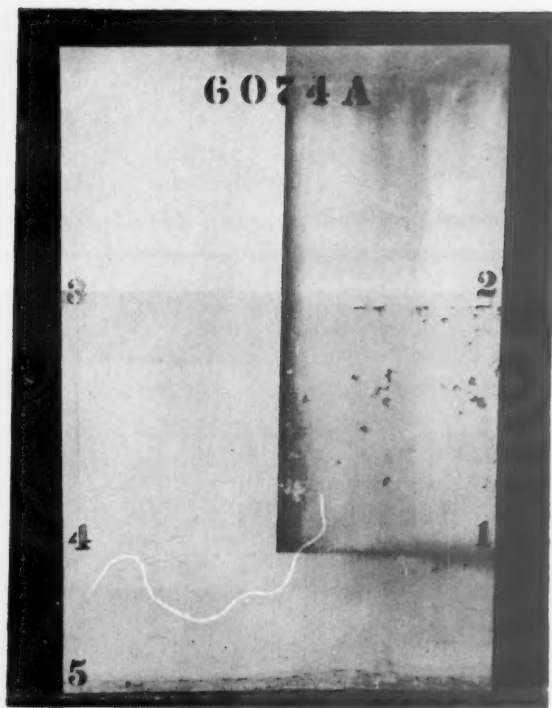


Formula B—Rusted panel, left; new panel, right; 36 months exposure. Straight alkyd resin vehicle. Recommended for use where no additional coating is to be applied. Note excellent performance even over untreated area of new panel.



Formula E—Rusted panel, left; new panel; right; 36 months exposure. Straight alkyd resin vehicle. Recommended for application where a topcoat is to be applied. Note excellent performance even over untreated area of new panel.

coats. Primers were applied to a dry film thickness of 1.5 mils \pm 10 percent per coat. Finish coat (aluminum) was applied to a dry film thickness of 1.0 mil \pm 10 percent. Panels of new galvanized steel were slightly larger and split in half, one side receiving pretreatment, the other not. Each side was divided into three areas for one primer coat, one primer coat and one finish coats, two primer coats and one finish coats. The aluminized panels, of 20 gauge steel, were divided similarly. All panels were washed with mineral spirits and the rusted ones were lightly wire brushed to remove loose rust particles. The panels



Example of poor performing paints on rusted panels.

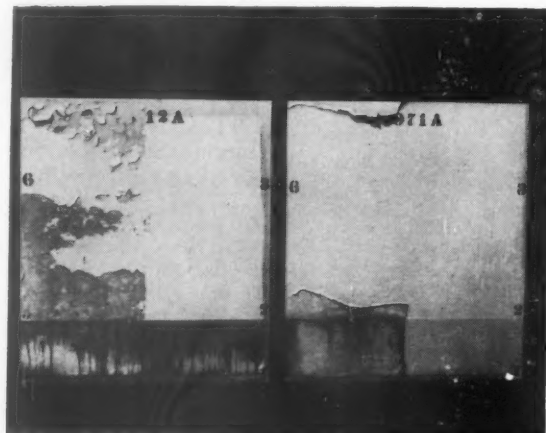
were exposed at the Atmospheric Testing Station, Sayville, N. Y. on the 45° south exposure racks. The station is on Long Island, fifty miles east of New

York City and one mile north of Great South Bay in a rural environment.

Pretreatments

One result of the program, aside from the paints themselves, was the corroboration of the most accepted views on pretreatment. New surfaces that are not treated cannot be painted effectively. Moreover, it was found that a number of commonly known pretreatments, those, for example, with copper sulphate, acetic acid, or hydrochloric acid are ineffective. Very successful, however, was a zinc phosphate treatment. The steps used in pretreating panels in the investigation and highly recommended are as follows:

1. Clean the surface. Remove all grease. Scrub surface lightly with steel wool.
2. Apply coating. Brush or spray undiluted coating uniformly on the cleaned zinc surface. A protective coating will form in one to two minutes.
3. Wash the coating with cold water. A sponge, rag or hose can be used.



Example of peeling on untreated panels.

4. Dry the coating with clean rags or allow sufficient time for the surface to dry before application of the paint.

Formulations

The paints themselves may be divided into three groups. Formulas A and B are for application where no topcoat is to be used. Formula C is for the same application, but where, for matters of taste, a green finish is desired. Where a topcoat is to be applied Formulas D and E are recommended. The reason for the pairings can be surmised by inspection. The pigments in the pairs are identical, but the vehicles differ. Formulas A and D (and C) are linseed oil-alkyd vehicle types where the wetting characteristics of linseed oil can be put to advantage where rust has commenced. Formulas B and E are straight alkyd vehicle types for use where faster drying time is desirable. The alkyd types are well suited to new, pre-treated, surfaces.

A final, incidental, result of the test was to demonstrate that aluminized surfaces have intrinsically good reception to adhesion, and a large number of the paints tested on them proved excellent.

DRYING OIL TECHNOLOGY

PART V (Conclusion)

Drying Mechanisms

ALTHOUGH there is an abundance of published information on the oxidation, deterioration, and drying mechanisms of drying oils, much of the data before 1940 is of dubious value. Early workers used direct approaches, i.e., practical tests in laboratory environments, with commercial or natural products. Nowadays, studies are limited to simple, pure compounds closely related to oxidative film formers. Progress has been considerable.

Since oils harden by an oxidative process, it is necessary to understand first the primary oxidation reaction. This is an autoxidation which is generally believed to take place between atmospheric oxygen and some reactive group or groups normally present in drying oils.

For many years, it was believed that the oxygen added to the unsaturated double bonds to form a cycloperoxide. (Figure 1).



Figure 1. Oxidation addition forming a cycloperoxide

This belief was the result of many iodine number studies. During oxidation, it was observed that the iodine values became lower and

lower as the film hardened. This was interpreted to mean that the degree of unsaturation decreased.

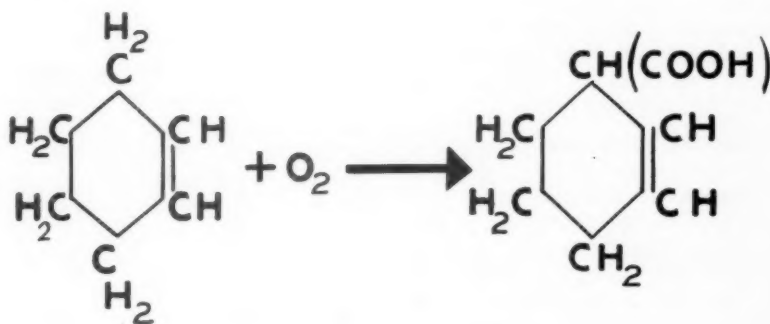


Figure 2. Oxidation of cyclohexene forming a hydroperoxide

Disregarded were the facts that chemists never were able to synthesize or isolate fatty derivatives with cycloperoxide rings or that standard iodine value determinations were meaningless in the

ing a slow, controlled oxidation of cyclohexene, C_6H_{10} . Contrary to all expectations, the hydro-

peroxide was found to contain a double bond. Strong evidence favored the reaction sequence as shown in Figure 2.

Many unsaturated compounds were found to exhibit similar behavior. In extending this work to fatty derivatives, an unsaturated fatty ester, methyl oleate, was thoroughly investigated. The primary oxidation product was found to be methyl oleate hydroperoxide with its intact double bond.

Oxidation is a Chain Reaction

In an effort to unravel the detailed mechanism of hydroperoxide formations, autoxidation was found to be a chain reaction. A chain reaction is characterized by the

presence of peroxides or conjugation.

Hydroperoxide Theory

However in 1939, a liquid peroxide, $C_6H_{10}O_2$, was obtained dur-

This series of articles was prepared by the Editorial Staff of Paint and Varnish Production.

presence of an induction or latent period which is followed by a period of increasingly rapid activity. Chain reactions are usually exothermic resulting in energetic end products which can initiate the same series of reactions over and over again.

During the oxidation of oils, the latent period is the time elapsing after a thin film has been exposed to air, and before a measurable quantity of oxygen combines with the film. The induction period is usually assumed to be the time necessary to destroy the natural antioxidants present in the oil. Since pure synthetic glycerides are free from antioxidants, they have no induction period. Similarly, the use of fractionated fatty acids in alkyds results in faster drying alkyds with practically no induction period. At all times, the induction period is normally followed by a period of increasingly rapid oxidation.

A reaction which is autocatalytic, stimulated by ultraviolet light, and catalyzed by substances which can decompose into free radicals, is usually in harmony with the free radical mechanism theory.

Autoxidation of unsaturated substances is believed to take place by means of a free radical mechanism because the formation of hydroperoxides 1) occurs readily under mild oxidation conditions in non-ionizing solvents, 2) is autocatalytic, 3) is preceded by an induction period, 4) is activated by ultraviolet light, 5) is independent of oxygen pressure, 6) is accelerated by many catalysts, and 7) is retarded by minute amounts of oxidation inhibitors.

The attack is probably initiated at an α -methylene group by the oxygen to start a chain reaction. By assuming that a hydrogen atom is removed from the α -methylene position, a chain cycle may start as shown in Figure 3.

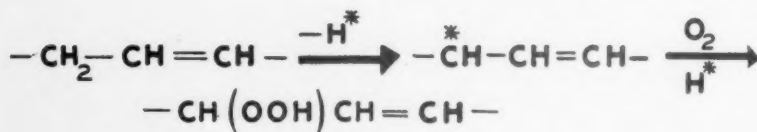


Figure 3. Reaction showing the beginning of a chain cycle

Perhaps the initial step in the above reaction takes place as shown in Figure 4, where R^* is the catalyst which can provide a single



Figure 4. Initial step in chain cycle reaction

electron. The ROO^* may then attack the methylene group as shown in Figure 5.

The action of metallic driers may be interpreted by the above mechanism. A drier is a catalyst which is capable of undergoing an oxida-

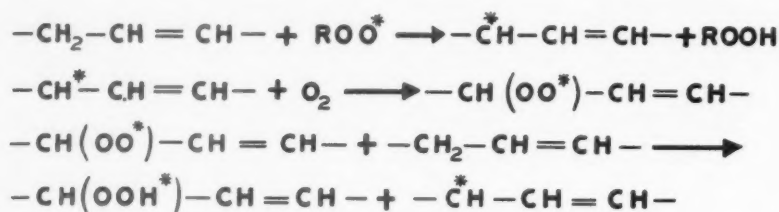


Figure 5. Reaction of ROO^* with methylene group

tion-reduction reaction. Therefore R^* can also be Co^{++} , Mn^{++} , Fe^{++} , or any other catalyst which can provide a single electron.

The formation of hydroperoxides is not necessarily limited to olefines. Many paraffins have been found to oxidize to hydroperoxides. Of course, the saturated compounds are much more resistant to oxidation than their unsaturated equi-

valents. However, in long term deterioration studies, the influence of saturated fats must be taken into account.

Isomerization During Oxidation

That unsaturated systems containing conjugated double bonds are more reactive than those containing isolated double bonds is well known. As we have seen, many ways were devised to assist non-conjugated systems to isomerize into conjugated systems. Apparently, this isomerization is also a normal process in autoxidation.

In an unconjugated drying oil system, a shift of double bonds takes place during the formation of hydroperoxides to form conjugated systems. For example, spectroscopists demonstrated that during the early stages of methyl linoleate oxidation, a strong absorption band appeared at 234 μ . The intensity of this band increased simultaneously with the increase

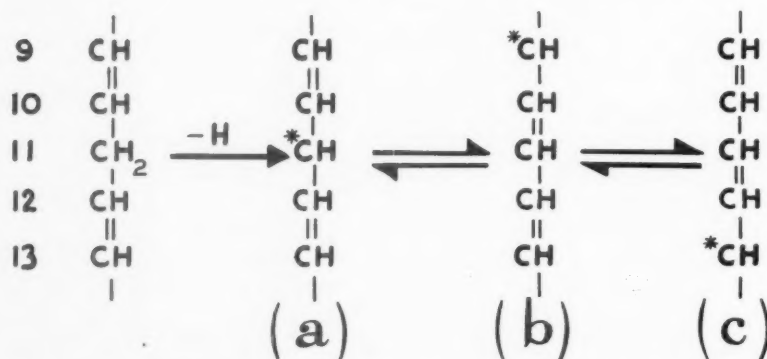


Figure 6. Stabilization of the newly formed free radical when a hydrogen atom is abstracted from one of the methylenic groups

of oxygen and the formation of the peroxides. This absorption band is unique to conjugated double bonds.

In linoleic acid, the most reactive position is the methylenic group between the double bonds at the C-11 position. If a hydrogen



Barrett Div., Allied Chemical & Dye Corp

Typical coating resin development laboratory

atom is abstracted from one of the methylenic groups, the newly formed free radical is stabilized through resonance with the three contributing structures (a), (b), and (c), (Figure 6).

The radicals can then combine with oxygen to form the hydroperoxides. Note that (b) and (c) are conjugated. This means that theoretically 67% of the possible structures resulting from autoxidation are conjugated. Experimentally it was found that approximately 70% of the hydroperoxides of methyl linoleate are conjugated.

High Temperature Oxidations

The mechanism of air drying at room temperature is apparently different from that of oxidation at high temperatures. An intensive study of the oxidation of methyl oleate at temperatures between 20° and 120° C. suggests that at the higher temperatures the double bonds are directly attacked by the oxidation.

On the basis of a series of disruptive oxidations, scission products can be identified and the original positions of the oxygen can be inferred. For example, on oxidizing methyl oleate for 34 days at 20°, one can isolate nonanoic, azelaic, octanoic, and suberic acids. This indicates that double bonds existed at all the available resonant positions. However, when methyl oleate was air oxi-

dized for six hours at 120°, the azelaic and nonanoic acids predominated. Therefore at 120°, the main point of attack was at the 9-10 position. A further indication that a different mechanism is responsible for high temperature oxidation is that the rate of autoxidation abruptly increases at temperatures near 80 degrees.

To reconcile these facts with the known formation of hydro-

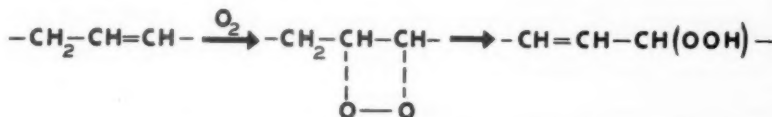


Figure 7. High temperature oxidation producing hydroperoxides

peroxides, it was suggested that at higher temperatures the isolated double bonds are directly oxidized. An arrangement is presumed to take place to produce a hydroperoxide as shown in Figure 7.

1:4 addition of oxygen is only the primary step. If, for example, the polymeric cyclohexadiene peroxide is catalytically hydrogenated, 1,4-dihydroxy cyclohexene is obtained, (See Figure 9).

(Turn to page 76)

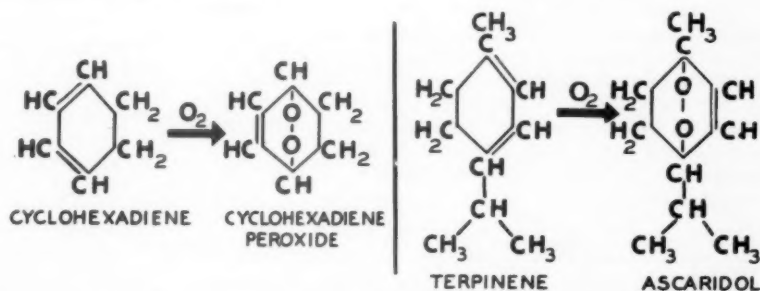


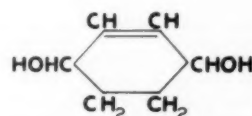
Figure 8. Reaction where conjugated double bonds are involved

Conjugated Double Bonds

To further complicate the problem, one must explain the fact that conjugated double bonds react differently to the addition of oxygen than unconjugated double bonds.

In cases where known conjugated diolefines are oxidized, trans-annular peroxides are found. The reaction is apparently a 1:4 addition closely related to the well known Diels-Alder reaction, (Figure 8).

The non-aromatic conjugated diene and polyene peroxides are formed rapidly in ultraviolet light and slowly in diffused light. In every case the peroxides are produced by the addition of oxygen at the diene system. The peroxides show high thermal stability and resist complete reduction either by chemical reduction or catalytic hydrogenation. They are polymeric in nature and from the behavior of the reduction products it is evident that the



1, 4-DIHYDROXY CYCLOHEXENE

Figure 9

STUDIES ON THE FLOCCULATION OF PHTHALOCYANINE BLUE

PART II (Conclusion)

By

E. G. Shur*

The experimental work and results of this work are discussed in this concluding part of the series. This work is chiefly concerned with the effect of organic dispersing medium upon the flocculation of copper phthalocyanine blue. Dispersion of phthalocyanine blue in mineral oil and raw castor oil with various organic solvents as well as direct dispersion of this pigment in various solvents are covered in this study.

Part I, which appeared in the April number, was concerned with a literature survey made in conjunction with this study.

EXTENSIVE X-ray studies at Ludwigshafen, Germany²¹ show that phthalocyanine blue exists in two physical modifications characterized by different X-ray diffraction patterns, known as the alpha and beta forms. The latter is the more stable, but is low in tinctorial strength and is unattractive in color. In the presence of some solvents, such as aromatic hydrocarbons, the alpha will go to the beta form. This corresponds to the change in color and the crystal growth in the presence of aromatic solvents which have been noted in such paint systems.⁵² When the alpha form is heated to 200°C or higher, it is transformed to the beta structure.

The phthalocyanine pigments tend to increase in particle size, change color and crystallize when exposed to organic liquids such as aromatic hydrocarbons and esters. The formation of particles longer than two microns causes great loss in covering power and tinctorial value. This is undoubtedly associated with a change in crystalline structure from the alpha to the beta forms. Halogenation of copper phthalocyanine apparently eliminates this difficulty, but results in a change of color.

Beard¹¹, stabilized copper phthalocyanine against flocculation by the use of tin phthalocyanine compounds.

Wiswall⁵⁷, and Lowkowsky⁴⁰, have evolved a patented process for stabilizing this pigment against solvent action. This consists in starting with coarse crystals of the alpha form, grinding with a water or acid soluble grinding aid to a particle size of one to two microns and then subjecting to the action of crystallizing liquids. Slight growth in size occurs, but the particle size remains under two microns and the particle is then resistant to further change in size. This solvent action is associated with a change in structure to the stable form. It is not known why these small crystals increase only slightly in size when exposed to solvent action, but there is a definite change in crystalline structure as is evidenced by X-ray diffraction spectra.

Lecher, Brouillard and Giambalvo³⁸ prepared non-flocculating phthalocyanine pigments by the hydrolysis of salts of the pigment prepared by treating the pigment in an excess of inert organic liquid with a non-oxidizing acid such as mineral acid, aliphatic sulfuric acid ester, sulfonic acid, etc.

Now DeBryne⁴⁷, hypothesized that polar surfaces attract polar particles while non-polar surfaces are attracted to non-polar molecules—a thesis which was also proposed by Von Thinius⁵⁴. Moser⁴⁵, claimed that surface structure influences the attraction between solids and liquids, that both polarity and wetting are important surface properties to consider; wetting and subsequent adhesion depending upon the presence of adjacent "compatible" functional groups for joining two substances. Surface molecular orientation influences wetting and ultimately adhesion.

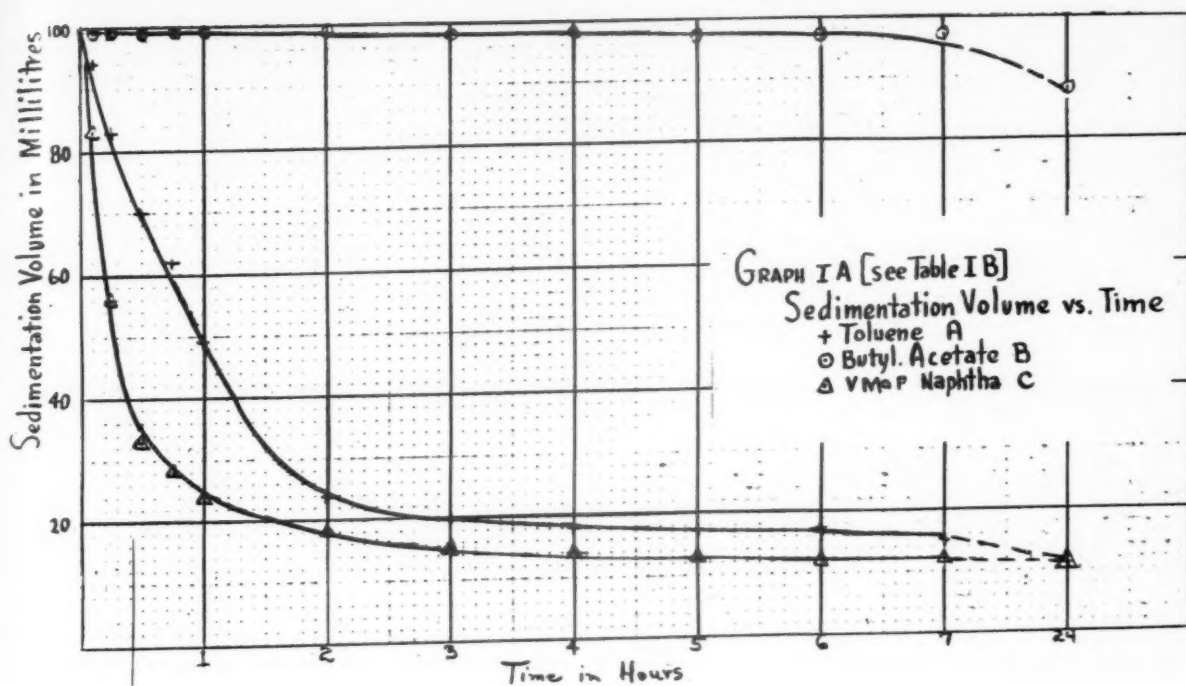
The present paper is concerned with a study of the effect of changes in the type and polarity of the continuous liquid phase upon the flocculative tendencies of the solid non-continuous phase—which consists of copper phthalocyanine in this work.

Phthalocyanine blue is notorious for its poor dispersion characteristics. Despite this fact, it remains a great commercial interest because of its brilliance, permanence of tone, and chemical resistance. Dispersions of copper phthalocyanine

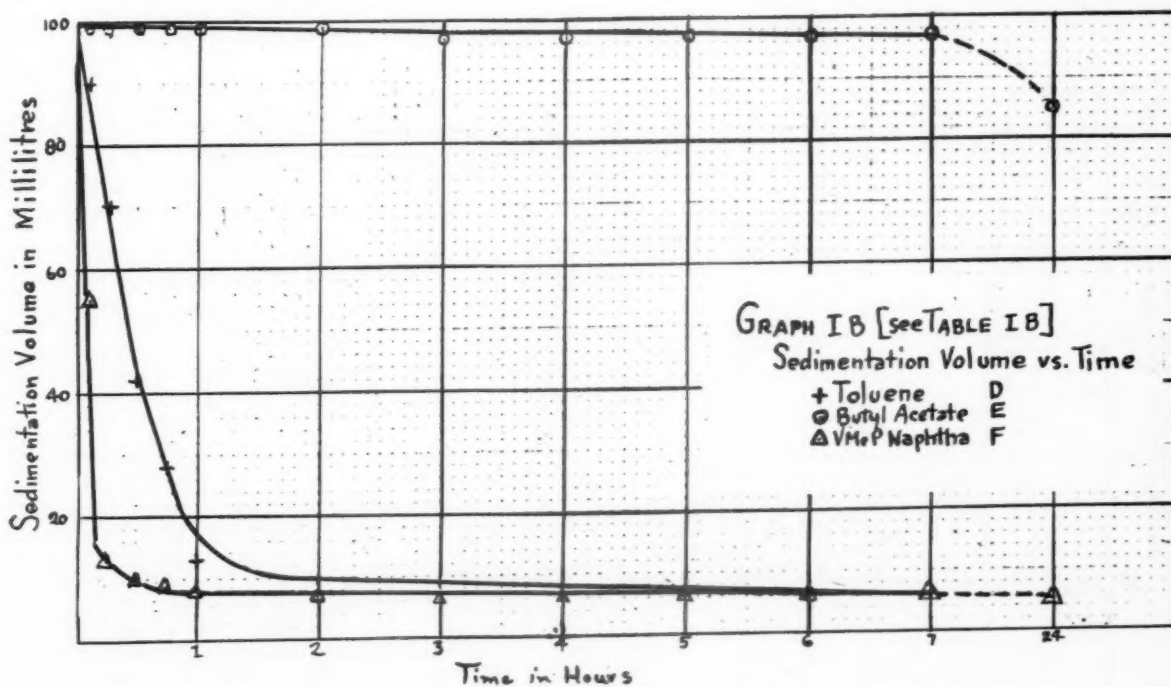
*Mr. Shur is connected with the Finishes Div., Interchemical Corp., Elizabeth, N. J.

This study was presented as part of the thesis requirements at the Polytechnic Institute of Brooklyn, Brooklyn, N. Y.

The author expresses his sincere gratitude to H. F. Payne for his invaluable assistance, advice and guidance during the period covered by this work.



Graph I A



Graph I B

Table I

I-A

Composition in Millilitres

	A	B	C	D	E	F
Pigment	0.258	0.258	0.258	0.129	0.129	0.129
Mineral Oil	9.742	9.742	9.742	4.871	4.871	4.871
Toluene	90.00	—	—	95.00	—	—
Butyl Acetate	—	90.00	—	—	95.00	—
V.M. & P.	—	—	90.00	—	—	95.00

I-B

Sedimentation Volume in Millilitres

	Time											
	5 Min.	15 Min.	30 Min.	45 Min.	1 Hr.	2 Hrs.	3 Hrs.	4 Hrs.	5 Hrs.	6 Hrs.	7 Hrs.	24 Hrs.
A	94	83	70	62	49	24	20	19	17	17	15	11
B	99	99	99	99	99	99	98	98	97	97	97	88
C	83	56	33	28	24	18	15	14	13	12	12	11
D	93	70	42	28	12	10	9	8	7	6	6	5
E	99	99	99	99	99	99	97	97	97	97	97	85
F	55	13	10	9	8	7	6	6	6	6	6	5

cyanine in organic media are characterized by instability and flocculation, particularly when applied by means of dip or flow coating.

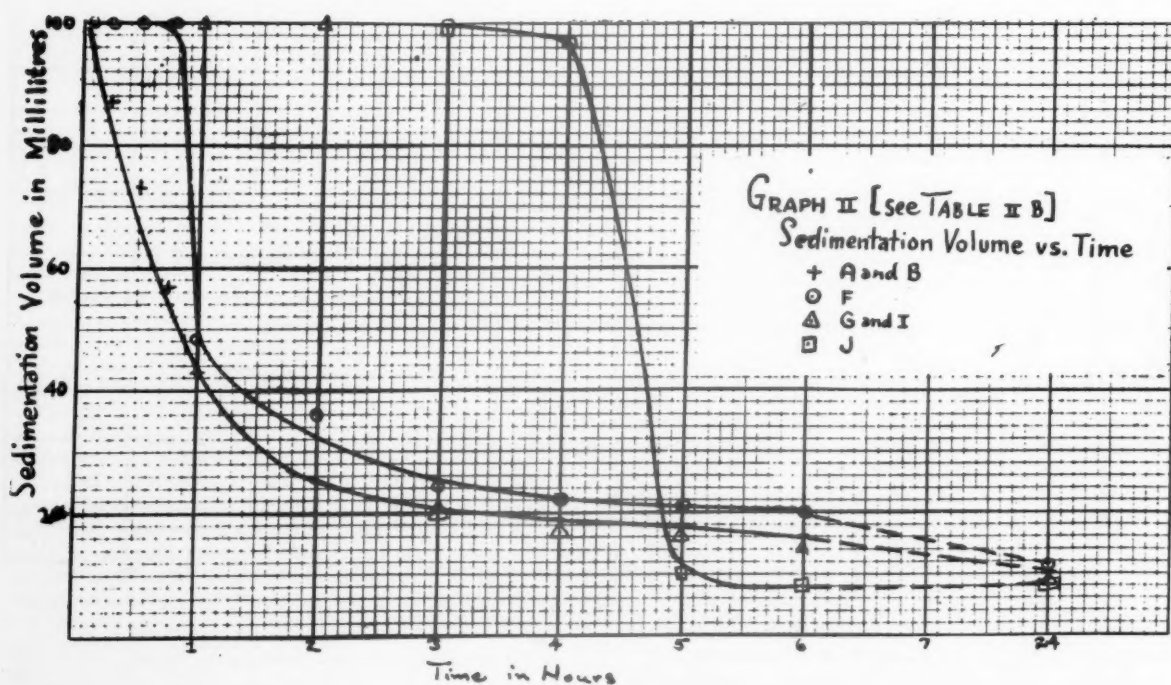
Experimental

The pigment chosen for experimental purposes was DuPont's phthalocyanine blue BT-284-D, Lot Number 88165. This is of the crystallization resistant type. This pigment was dispersed in mineral oil "Primol D" (Standard Oil of New Jersey).

The initial dispersion was made on the three roller mill at a concentration of 40% pigment by weight. This formed a

very heavy paste, difficulty redispersible in organic solvents. It was found necessary to reduce the pigment concentration to 5% by weight or 2.58% by volume in order to form a freely flowing paste of easily workable consistency. This dispersion displayed a separation of pigment from vehicle, indicative of flocculation, within three days.

The low concentration paste was agitated and then let down first with toluene—as representative of the aromatic hydrocarbons; secondly with V. M. & P. Naphtha—as representative of the aliphatic hydrocarbons; and lastly with butyl acetate—representative of the organic ester type. Paste and organic solvent were agitated in a 100 ml. grad-



Graph II

Table II

II-A

Composition in Millilitres

	A	B	C	D	E	F	G	H	I	J
Pigment	0.258	0.258	0.258	0.258	0.256	0.258	0.258	0.258	0.258	0.258
Mineral Oil	9.742	9.742	9.742	9.742	0.742	0.742	0.742	0.742	0.742	0.742
Toluene	89.00	85.00	80.00	75.00	70.00	60.00	45.00	30.00	15.00	0.00
Butyl Acetate	1.00	5.00	10.00	15.00	20.00	30.00	45.00	60.00	25.00	90.00

II-B

Sedimentation Volume in Millilitres

Time

	5 Min.	15 Min.	30 Min.	45 Min.	1 Hr.	2 Hrs.	3 Hrs.	4 Hrs.	5 Hrs.	6 Hrs.	24 Hrs.
A	96	88	72	55	42	25	21	19	18	17	10
B	96	87	73	58	45	24	20	19	18	16	10
C	97	89	76	62	49	26	20	19	17	16	10
D	97	90	77	62	49	26	20	19	18	17	10
E	97	91	77	62	49	24	20	18	17	16	10
F	100	100	100	100	48	36	24	22	21	20	11
G	100	100	100	100	100	100	19	18	17	15	9
H	100	100	100	100	100	100	20	17	16	15	9
I	100	100	100	100	100	100	24	19	18	17	9
J	100	100	100	100	100	100	99	97	15	14	8

uated, glass stoppered cylinder and observed for sedimentation. The values recorded represent the apparent volume in millilitres of pigment settlement at various time intervals. There is a fairly sharp break between the settled portion and the supernatant liquid which is read as the sedimentation volume. In this case, flocculation will cause the formation of large solid particles which settle rapidly; the speed of separation is therefore an indication of the rate and extent of flocculation.

Since the mineral oil vehicle used may be considered as completely non-polar, we are, therefore, determining the effect of variation in the nature and polarity of the organic solvent upon flocculation. See Table I-A for composition and Graph I and Table I-B for results of this first test series.

It is quite apparent that of the three solvents tested, butyl acetate is the best, toluene next best and naphtha the worst for the prevention of flocculation. Flocculation is present in

Table III

III-A

Composition in Millilitres

	A	B	C	D
Pigment	1.29	1.29	1.94	1.94
Mineral oil	48.71	48.71	73.06	73.06
Toluene	—	50.00	—	25.00
Butyl Acetate	50.00	—	25.00	—

III-B

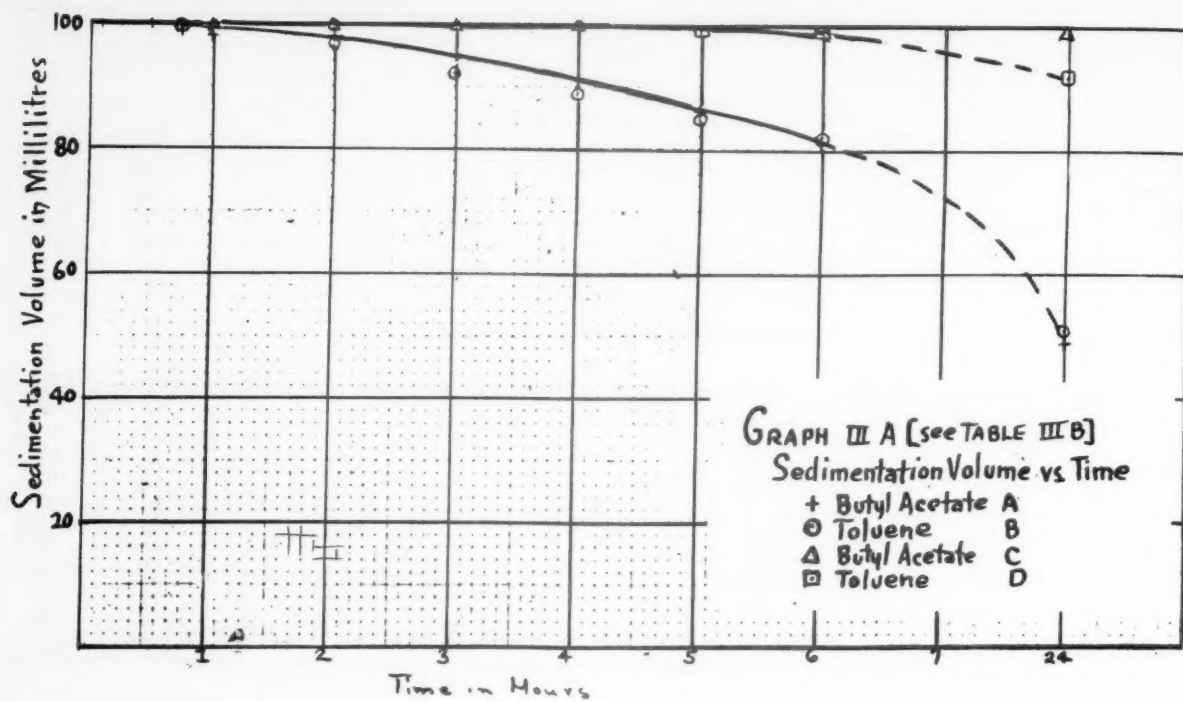
Sedimentation Volume in Millilitres

Time

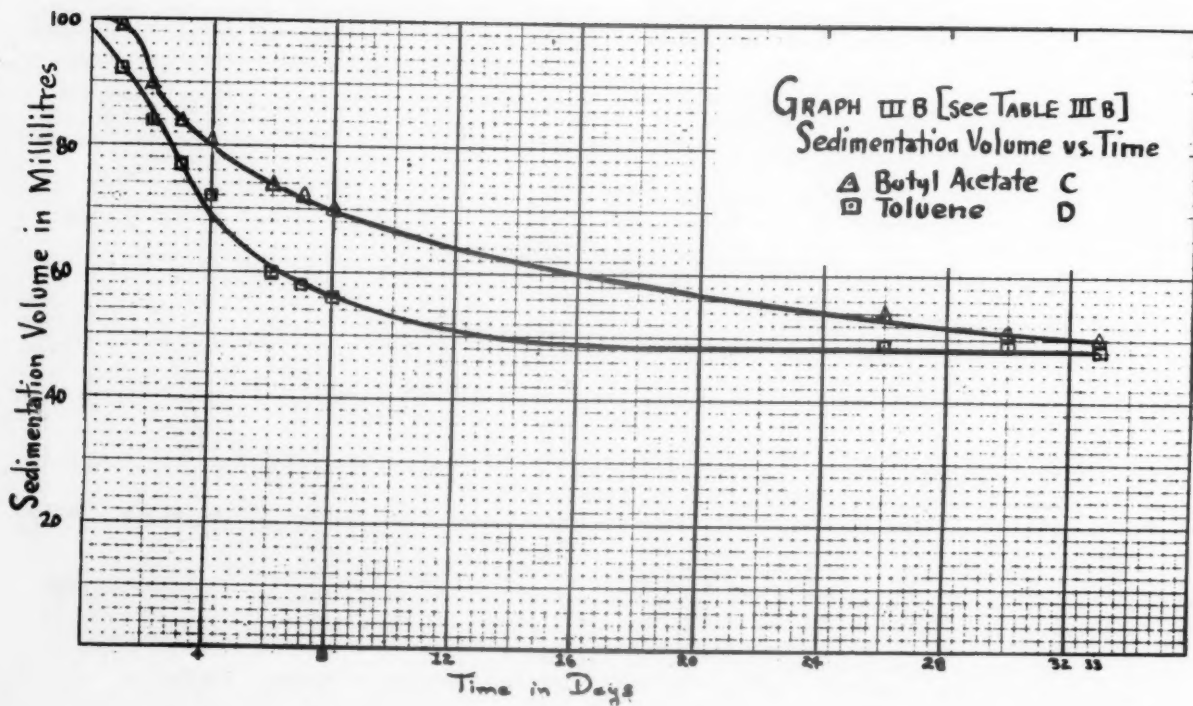
	5 Min.	15 Min.	30 Min.	45 Min.	1 Hr.	2 Hrs.	3 Hrs.	4 Hrs.	5 Hrs.	6 Hrs.	7 Hrs.	24 Hrs.	48 Hrs.
A	100	100	100	99	98	98	95	91	86	81	—	49	—
B	100	100	100	99	99	97	92	89	85	82	—	51	—
C	100	100	100	100	100	100	100	100	100	100	—	98.5	90
D	100	100	100	100	100	100	100	100	99	99	—	92	84

III-B (Cont'd.)

	72 Hrs.	96 Hrs.	146 Hrs.	176 Hrs.	200 Hrs.	656 Hrs.	752 Hrs.	824 Hrs.
A	—	—	—	—	—	—	—	—
B	—	—	—	—	—	—	—	—
C	84	81	74	72	70	54	51	50
D	77	72	60	58	56	49	49	48



Graph III A



Graph III B

Table IV

 IV-A
 Composition in Millilitres

	A	B	C	D	E	F	G	H	I	J	K	L
Pigment	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
Mineral Oil	4.72	4.72	4.72	4.72	4.72	4.72	—	—	—	—	—	—
Raw Castor Oil	—	—	—	—	—	—	4.72	4.72	4.72	4.72	4.72	4.72
Ethyl Acetate	93.70	—	—	—	—	—	93.70	—	—	—	—	—
Butyl Acetate	—	93.70	—	—	—	—	—	93.70	—	—	—	—
Amyl Acetate	—	—	93.70	—	—	—	—	—	93.70	—	—	—
V.M. & P. Naphtha	—	—	—	93.70	—	—	—	—	—	93.70	—	—
Benzene	—	—	—	—	93.70	—	—	—	—	—	93.70	—
Toluene	—	—	—	—	—	93.70	—	—	—	—	—	93.70

IV-B

Sedimentation Volume in Millilitres

	Time											
	5 Min.	15 Min.	30 Min.	45 Min.	1 Hr.	2 Hrs.	3 Hrs.	4 Hrs.	5 Hrs.	6 Hrs.	7 Hrs.	24 Hrs.
A	100	100	99	99	98	96	95	93	91	89	87	62
B	100	100	100	99	99	99	99	99	99	99	99	70
C	100	100	100	100	100	99	99	99	99	99	99	94
D	100	100	96	87	75	60	55	52	50	49	47	38
E	100	100	99	99	98	86	63	56	53	51	50	39
F	100	100	100	100	100	99	95	91	89	87	86	73
G	100	99	99	99	99	97	93	83	78	68	64	49
H	100	100	100	100	99	99	98	97	96	95	94	82
I	100	100	100	99	99	99	98	98	98	98	98	96
J	Castor oil, paste incompatible with V.M. & P. Naphtha											
K	100	100	100	100	99	97	85	84	57	54	52	40
L	100	100	100	100	100	99	97	96	95	94	92	28

each instance, but is apparently more rapid and produces larger particles in the case of the latter solvent.

A new series was prepared wherein mixtures of butyl acetate and toluene were used. See Table II-A for composition and Graph II and Table II-B for results. Here again, the presence of the polar-non-polar ester molecule inhibits the speed of sedimentation and minimizes the formation of large flocules. At this point, the question arose as to why toluene should be better than naphtha when both have very low dielectric constants compared with butyl acetate.

Van der Waarden⁵¹, claimed that aromatic hydrocarbons exhibited a greater "interaction" with polar molecules than do aliphatic hydrocarbons, possibly due to the tendency for aromatics to become polarized in the plane of the benzene rings (*Kerr effect*), or to the presence of a number of partial dipoles within the rings. Of course, alkylated aromatics have a small dipole moment, so that apart from differences in what we may call the inherent wetting characteristics of the separate solvents, there is also some difference in their reaction to a polar-non-polar molecule such as copper phthalocyanine.

The amount of pigment paste used was increased in two series, see Table III and Graph III. At these higher pigmentations, it is apparent that the concentration of mineral oil introduced is excessive and is beginning to affect the comparative results. Accordingly, a more concentrated paste was prepared at 25% pigment concentration by volume in the same mineral oil and in AA Raw Castor Oil (Baker), the latter in an attempt to ascertain the effect of the use of a semi-polar oil as a dispersing vehicle as opposed to the non-polar mineral oil. See Table IV-A, B and Graph IV for composition and results.

A last series was prepared in which the pigment was dis-

persed directly by agitation in each of the separate organic media without prior dispersion in a grinding vehicle. See Table V and Graph V for composition and results of the

Table V

V-A

Composition in Millilitres

Pigment	1.58
Solvent	98.42

A	Ethyl Acetate
B	Butyl Acetate
C	Amyl Acetate
D	Benzene
E	Toluene
F	Lactol Spirits
G	Di-chlorethylene
H	Ethyl Alcohol
I	Butyl Alcohol
J	Acetone
K	Methyl Ethyl Ketone
L	Methyl Isobutyl Ketone

sedimentation tests. Two samples of this dispersion type were chosen for further investigation. See Table VI and Graph VI. These were in butyl acetate and lactol spirits, being representative of relatively good and bad flocculative characteristics respectively. Both samples exhibited Newtonian flow when measured on the microviscometer, although

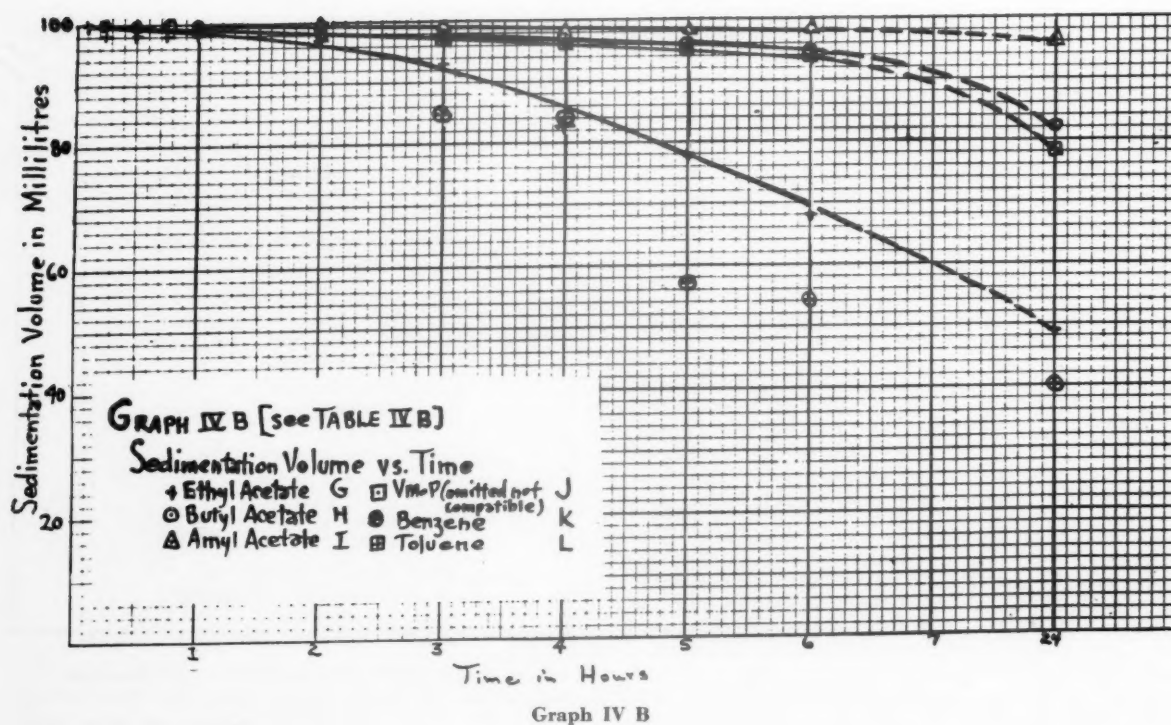
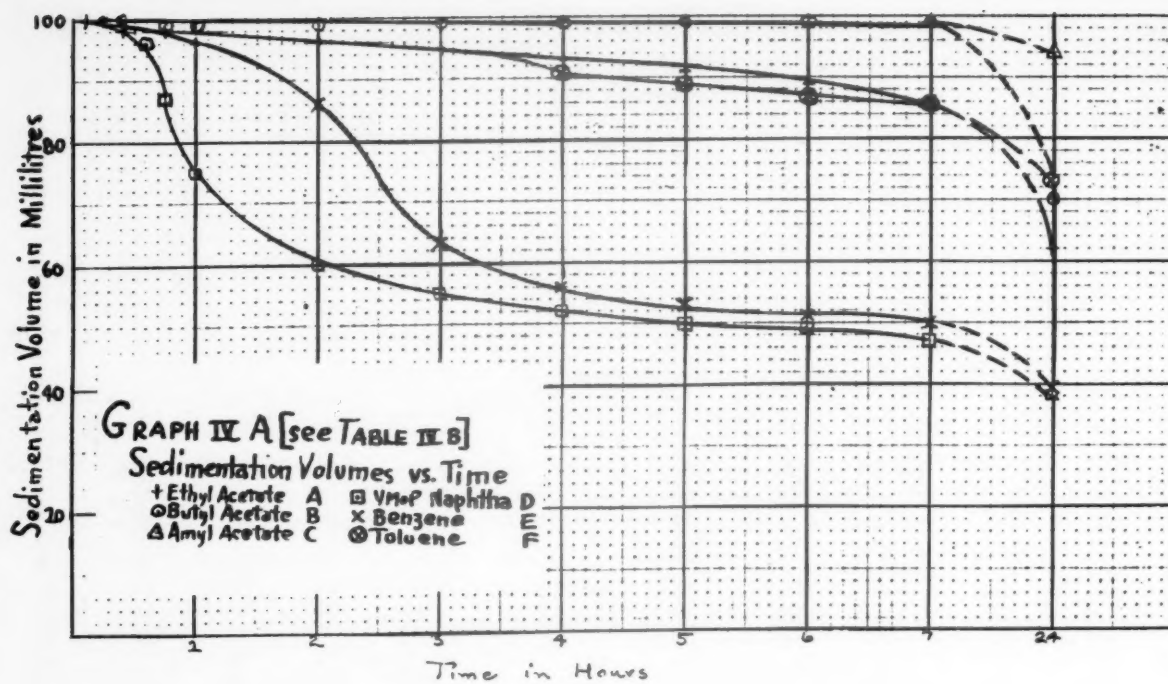


Table V
V-B
Sedimentation Volume in Millilitres
Time

	5 Min.	15 Min.	30 Min.	45 Min.	1 Hr.	2 Hrs.	3 Hrs.	4 Hrs.	5 Hrs.	6 Hrs.	24 Hrs.	48 Hrs.	72 Hrs.
A	100	100	100	100	100	100	100	100	100	100	12	12	11
B	100	100	100	100	100	100	100	100	100	100	100	100	11
C	100	100	100	100	100	100	100	100	100	100	100	100	12
D	42	34	30	28	26	22	20	19	18	18	18	17	17
E	45	36	31	28	26	21	19	18	18	18	18	18	17
F	30	18	15	14	14	13	13	13	13	13	12	12	12
G	95	70	44	28	21	17	16	15	15	15	14	14	14
H	95	70	47	22	17	14	13	13	13	13	13	13	13
I	99	99	99	99	98	98	98	17	16	15	13	13	13
J	91	62	28	17	16	14	13	13	13	13	13	13	13
K	76	36	16	14	14	13	13	13	13	13	13	13	13
L	89	46	34	18	16	14	13	13	13	13	13	13	13

their viscosities were different, see Table VI-A. Photomicrography indicated that the pigment particles in butyl acetate were flocculated but had no particularly dense flocules. After sedimentation there was an increase in the number but probably not in the size of the particles. The dispersion in lactol spirits shows considerable flocculation with quite large flocules after settling. There is, therefore, definite correlation between the results obtained in the determination of sedimentation volume and those revealed by photomicrography. These suspensions settled rapidly enough in the microviscometer to give difficulty in measurement. The very slight yield values may have definite correlation with solvent effect in these tests. The concentration of pigment used in these tests is the highest which will give differential comparative results in sedimentation and, therefore, rheological tests do not appear to be as valuable in indicating the extent of flocculation at low solid content, as do sedimentation and photomicrography.

Discussion

We have already noted Green's differentiation³⁰ between flocculation and agglomeration. The process of flocculation is not irreversible, that is to say, where the solid particles exhibit flocculative tendencies, although the structure may be destroyed by the application of external force, flocculation, will recur when this external agitation is removed.

There are many existing means for the determination of the existence of a flocculated solid phase, among which are: 1). visual examination; 2). microscopic examination; 3). measurement of electrical conductivity (McDowell and Usher⁴²); 4). measurement of the dielectric constant of suspensions (Voet⁵³); 5). rheological study (Green op. cit.); and 6). sedimentation volume determinations. This latter method is the one chosen for this work. It is a relatively simple method, providing a semi-quantitative measurement of the extent of flocculation. Flocculation will cause rapid settling, the rate of settling being directly related to the size of the flocule as will be seen by reference to the attached photographic series, Graph VI and Table VI-C. Fischer²² states that particle size will determine the rate of settling and that the latter may be predicted, ideally only, by Stoke's law. Obviously, since the velocity is a function of the square of the particle radius, flocculated particles will have greatly accentuated speeds of sedimentation.

We have already noted the conclusions of many investigations which have correlated sedimentation volume with such properties as the polarity of the liquid, interfacial tension,

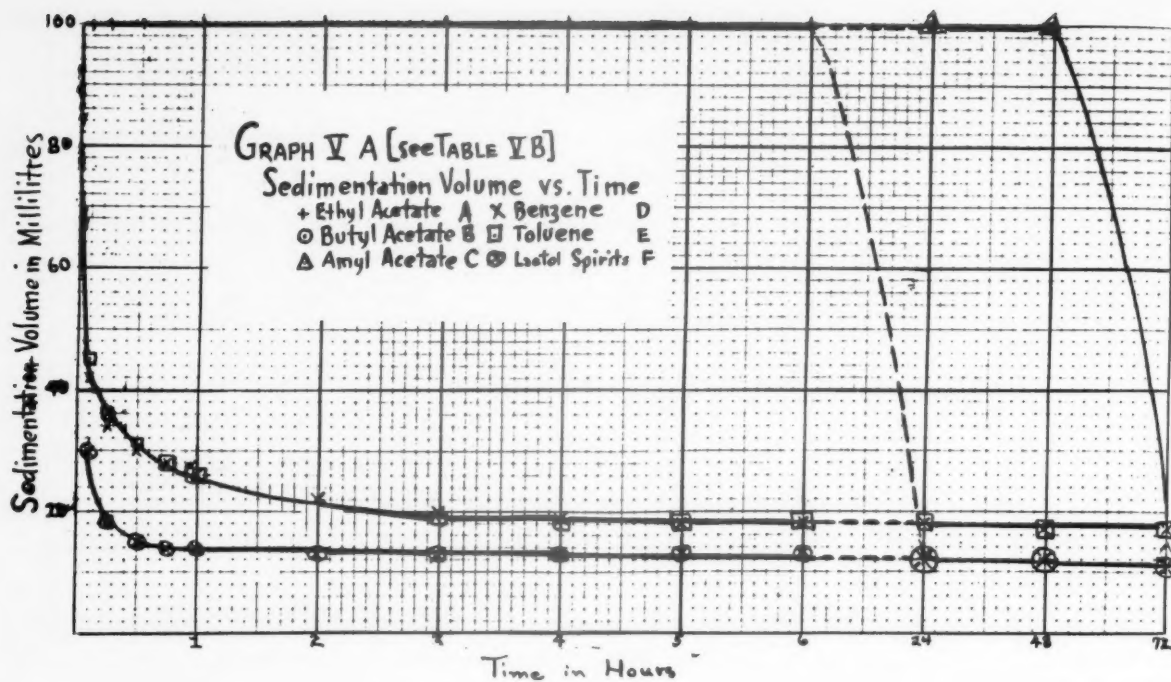
adhesion tension, dielectric constant, etc. The results of this type of determination, however interesting and qualitative remain of relative value only. That they also are of practical significance has been shown by Werthan *et al.*⁵⁵ and Hancock and Brown³³.

In this investigation of the effects of variation in the solvent media on the dispersion of phthalocyanine blue pigment, we have observed a definite relative variation in the rate of settling.

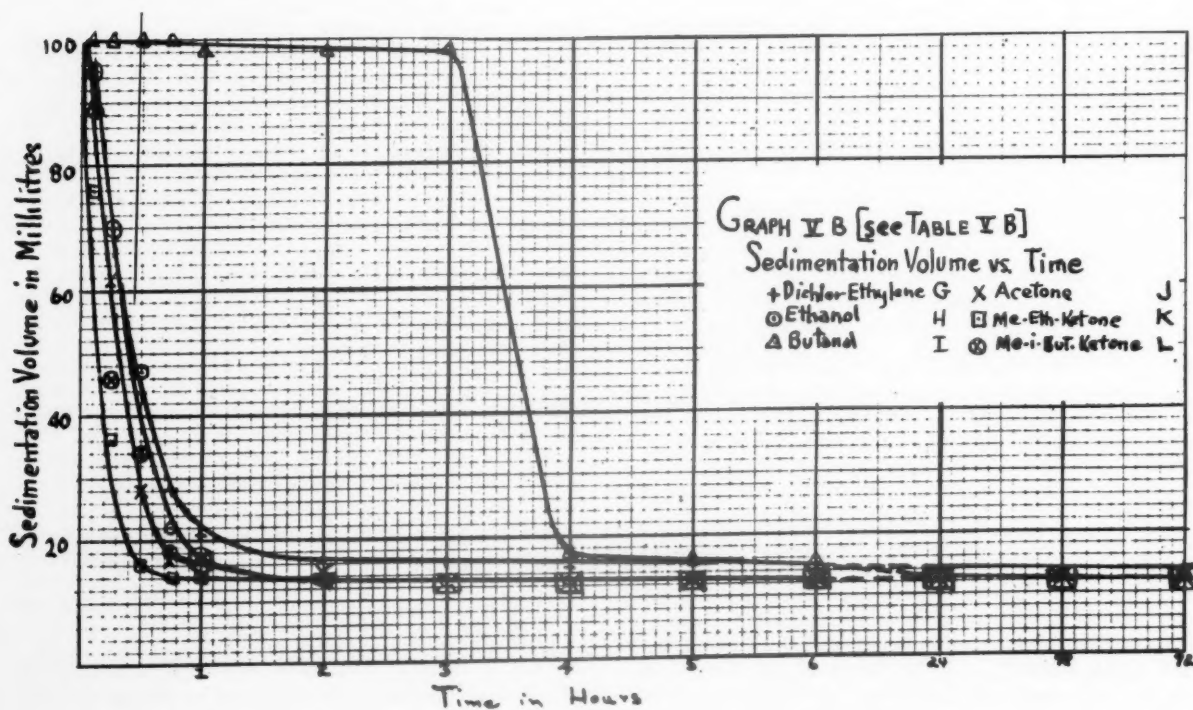
In the initial series (see Graph I-A, B) butyl acetate was shown to be markedly better in its dispersing characteristics than toluene, which in turn was better than naphtha (aliphatic). Thus our initial tests established the superiority of the aromatic over the aliphatic hydrocarbon, despite the absence of any appreciable dipole moment in the toluene molecule. Dispersing characteristics, therefore, appear somewhat independent of polarity unless we are to assume the thesis of Van der Waarden above (q. v.) regarding the polarity of aromatic molecules. The effect of increased pigment concentration is to produce the same relative rates of sedimentation with higher sedimentation volumes.

In series II, the effect of the addition of butyl acetate to toluene is to slow up the rate of sedimentation. When the concentration of phthalocyanine pigment in mineral oil is increased, (see Graph III), the net effect is an increase in the sedimentation volume although the differences between the effect of butyl acetate versus toluene are almost eliminated, probably due to the introduction of large quantities of mineral oil. However, the difference remains present, with butyl acetate being slightly better in resistance to settling. On extended settling both systems approach the same sedimentation volume. This is indicative of the fact that both systems have flocculated although to variant degrees.

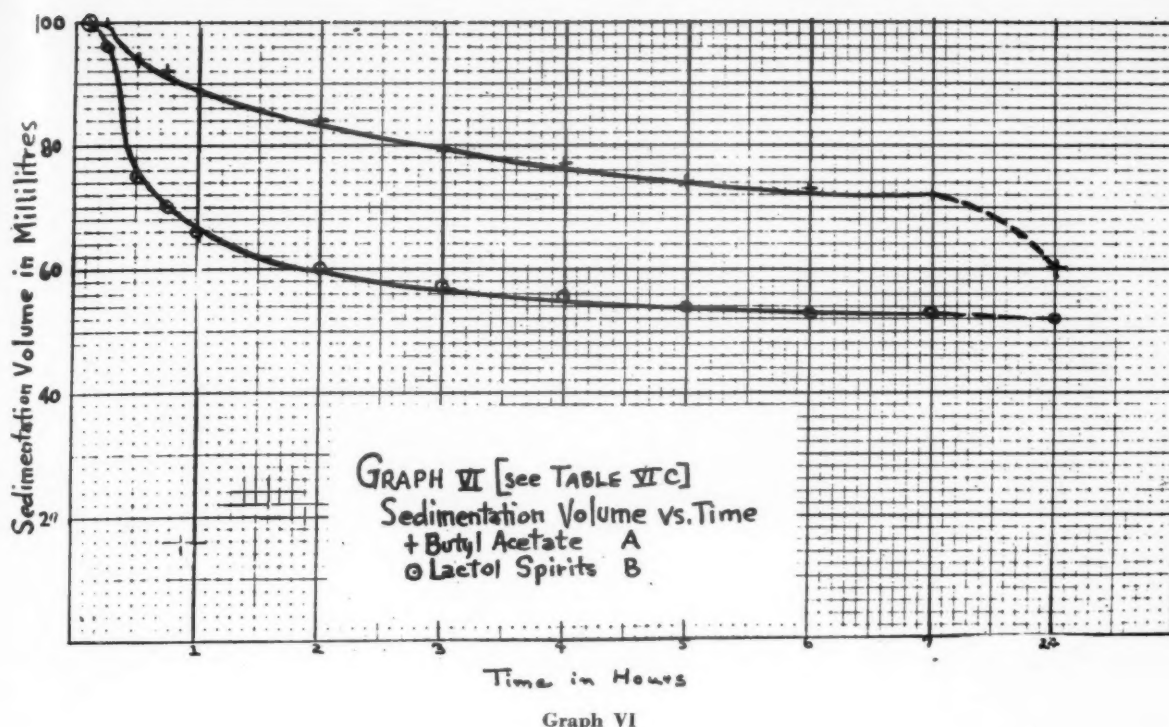
A more concentrated paste was prepared in both mineral oil and the more polar raw castor oil. A wider range of solvents was used. Three acetate esters were tried: ethyl; butyl; and amyl. These represent commonly used solvents in a series of increasing alkyl radical size. The polarity would presumably diminish with increase in the size of the alkyl group. Of these three esters tested with dispersions in mineral oil, the resistance to flocculation was found to increase with decrease in polarity; ethyl acetate being markedly worse and approximately of the same order as toluene. Of the hydrocarbons tested, toluene was markedly better than benzene which, in turn, was an improvement over the aliphatic hydrocarbon. In the case of these two latter organic solvents,



Graph V A



Graph V B



neither of which may be construed to have any polar characteristics, the difference in resistance to flocculation must be attributed to some difference in their properties of wetting. These comparative results were duplicated when the castor oil dispersion was tested with different solvent media. Polarity, although perhaps an important consideration, is apparently not the only factor involved.

When the pigment is dispersed directly in a variety of solvents, the net relative effect remains the same. Again, the acetate esters were markedly superior in their resistance to flocculation, the order of result being amyl > butyl > ethyl. Toluene and benzene behaved similarly, but both were super-

ior to the aliphatic hydrocarbon and lactol spirits. Of a series of other solvents of greater polarity tested, only n-butanol appeared outstanding in resistance to flocculation, being superior to the more polar ethyl alcohol. We might, therefore, infer a certain maximum point of balance of polar and non-polar character as being most advantageous for the dispersion of the pigment tested.

Botti¹³, has found that variation in resistance to flocculation will occur when aliphatic, semi-aromatic, aromatic and terpene solvents are used with a medium length alkyd vehicle. These results, obtained with the crystallization resistant

(Turn to page 70)

Table VI

VI-A

Composition in Millilitres

	A	B
Pigment	7.79	7.79
Butyl Acetate	92.21	—
Lactol	—	92.21

VI-B

(Solvent Only)
Viscosity (Poises)

(Suspension)
Viscosity (Poises)

Yield Value
Dynes/cm²

A	Butyl Acetate
B	Lactol Spirits

0.0069
0.0045

0.022
0.020

1.9
3.6

VI-C

Sedimentation Volume in Millilitres
Time

	5 Min.	15 Min.	30 Min.	45 Min.	1 Hr.	2 Hrs.	3 Hrs.	4 Hrs.	5 Hrs.	6 Hrs.	7 Hrs.	24 Hrs.
A	100	100	94	92	89	84	79	77	74	73	72	60
B	100	96	75	70	66	60	57	56	54	53	53	52

News of Paint and Varnish Production Club Meetings

LOUISVILLE

The March meeting was held at the Seelbach with 43 members and guests attending. Two names were proposed for membership.

Vice-President Maherney introduced the guest speaker Alfred Hague, President of Alfred Hague and Co., Brooklyn, N.Y. who addressed the membership on "Emulsified Chlorinated Natural Rubber for Water-Thinnable Paints."

After a short historical introduction it was explained how use can be made of chlorinated rubber of higher molecular weight than was formerly possible. It was demonstrated that pigment may be stirred into the emulsion without foaming. No fungicide is required except as a precaution as in a shelf life of 5 years. The emulsion is stable to freeze thaw as in outdoors through the winter at 20°F. The dry film does not oxidize, being completely saturated, nor re-emulsify after 24 hours. It can be used to modify other emulsions. It is not affected by gasoline or alcohol, but is affected by aromatics. The new product is composed of granules of apparently dry chlorinated rubber plus agents so that an emulsion is obtained upon adding water.

NEW ENGLAND

The annual "Ladies' Night" was ushered in at the University Club with a turnout of 125 people. Alan R. Lukens, Vice President, handled arrangements for the evening.

The highlight was the presentation of the first NEPVPC Awards to Francis C. Atwood and Walter F. Kuster in recognition of the fine service they have rendered to the New England Club and the Federation. Both men are past presidents of the New England Club and the Federation.

Mr. Atwood is responsible for the introduction of the Paint Industries Show, which has proved to be very profitable to the Federation.

Mr. Kuster has served on many Club and Federation technical committees and has contributed much to advancement of the protective coatings industry.

The inscription on the citations reads as follows:

"In recognition of devotion and service to the science of protective coatings which has brought credit and benefit to the industry; to the Paint and Varnish Production Clubs everywhere, and particularly to the New England Paint and Varnish Production Club."

C.D.I.C.

The 348th meeting was held at Hotel Alms, Cincinnati, Ohio, March 14. This meeting had been designated "Ladies Night." The members had been urged to bring their wives or sweethearts. In addition, the Cincinnati Paint Club members and their wives were invited.

C. J. O'Connor, President, Reichhold Chemicals, Inc., was guest speaker. By means of a color movie, was able to take the group to Ireland, Italy, Greece, Egypt, Jordan, Israel, Turkey, Austria, Switzerland, Germany, and France. As the trip included the Holy Land, it was fittingly entitled "The Pilgrimage." The meeting's success can be judged by the fact that 141 members and guests were present.

All business was dispensed with except for the reports of the Nominating Committee, and the Membership Committee.

Dr. Herbert L. Fenburr nominated William L. Foy, The Foy Paint Co., for President; Carl J. Opp, Interchemical Corp., for Vice President; Chester A. Olsen, Hanna Paint Co., for Secretary; Harry E. Pansing, Ander Chemical Co., and Eugene Ewell, Lowe Brothers Co., for Treasurer. Additional nominations may be made from the floor at the next meeting.

Elmer Moerschel, Membership Committee, gave the first reading to a Class A membership: Lawrence L. Bing, Jr., Paint Supervisor, Wilson Paint Co.,; and first reading for two Class B memberships: Fred C. Crowe, Research Technician and Daniel D. Downes, Chemical Specialist, Dayton Oil Co.

A second reading was given to a Class A membership application: John R. Grosser, Alkyd & Varnish Chemist, Perry & Derrick Co. It was moved and

seconded that he be accepted for membership. Motion carried.

The 349th meeting was held at Sutt-millers, Dayton, Ohio, April 11, with 48 members and guests present.

The meeting was called to order by President Robert Lipp. The minutes of the previous meeting were read and approved.

Jack Winget, in the absence of Elmer Moerschel, gave the first reading to three Class "A" membership applications, namely: Charles Herzog, Control Chemist, Edward J. Shannon Co.; George A. Gruman, Jr., Plant Foreman, and Richard G. Stutz, Paint Chemist, Aluminum Industries, Inc.

The second reading was given to one Class "A" membership: Lawrence L. Bing, Paint Supervisor, Wilson Paint Co.; and two Class "B" memberships: Fred C. Crowe, Research Technician, and Daniel D. Downes, Chemical Specialist, Dayton Oil Co.

It was moved and seconded that the names given the second reading be accepted for membership. Motion carried.

The Technical Committee report was given by Robert F. Schwartz of Battelle. He stated "they were beginning to get more consistent results in their Polymerization work; over two hundred different recipes had been tried and they were about ready to standardize on a formula and procedure."

The annual election had been purposely moved up one month. Since there was but a single candidate for the office of President, Vice-President, and Secretary, and with no further nominations from the floor—it was moved by Bill Kentner, seconded by Jack Winget that nominations be closed. Motion carried. It was then moved and seconded that these Officers be elected by acclamation. Motion carried.

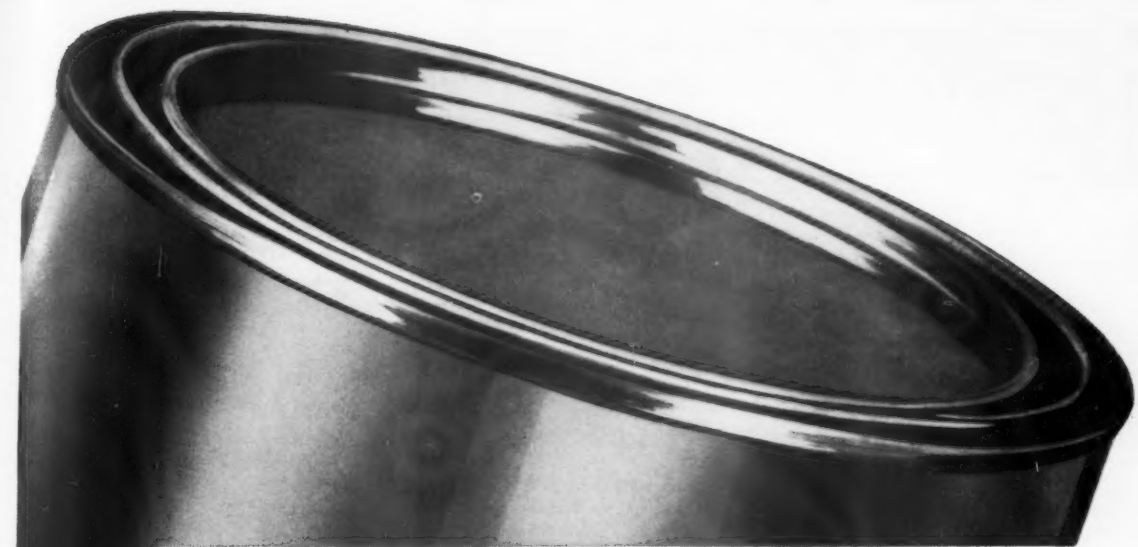
There were two candidates for Treasurer: Eugene Ewell, Lowe Brothers Co. and Harry Pansing, Ander Chemical Co. Harry Pansing was elected by secret ballot as Treasurer.

The new Officers for the year 1955-56

(Turn to page 69)

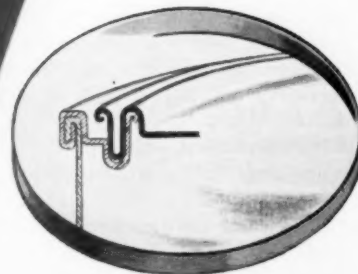


In left view president Harry Kelfer of New England Paint & Varnish Production Club presents first NEPVPC award to Frank C. Atwood for outstanding service to the club and the Federation; (right) presents same award to Walter F. Kuster.



Isn't today a good time to ask about tailor-made package service?

Before you order another paint can, why not see what Continental's Tailor-Made Package Service can do for you. Our interest in our customers goes far beyond supplying the best in paint cans without an instant's delay. We're also concerned with keeping your operations flowing smoothly, your products up to standard. That's why we make available expert engineering and research to fit your particular needs. In all our dealings with you, we will treat you as if you were our one and only customer. Let's get better acquainted — today.



PUT YOUR PAINT in a container you can brag about . . . Continental's "Tripletite"! In lid and lid seat, metal touches metal at three points instead of the usual two. The result is a 50% increase in guard points against oxidation and messy paint skin.

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CENTRAL DIVISION: 125 SO. LA SALLE ST., CHICAGO 3

PACIFIC DIVISION: RUSS BUILDING, SAN FRANCISCO 4

NEWS

New Synthetic Glycerine Process Claimed by Shell

The first step in a three phase program for making synthetic glycerine by an entirely new method was announced by Shell Chemical Corp.

According to R. C. McCurdy, President, the firm will begin work immediately at Norco, La., near New Orleans, on a new hydrogen peroxide plant with a design capacity of more than 30,000,000 pounds a year. The second plant, to be built later, will make acrolein. The third plant will produce the glycerine, using acrolein and hydrogen peroxide as intermediates.

The hydrogen peroxide production figure is on a 100 per cent basis. Actually, the chemical is manufactured in solutions of various concentrations.

Garland Co. Notes New Products On 60th Birthday

The Garland Company of Cleveland celebrated its 60th anniversary recently by announcing new building plans and new product developments.

At the company's anniversary dinner Mrs. J. F. Wise, President and widow of the founder, announced construction would soon start on a new addition to the office facilities. She also said that extensive plant improvements made during the last year were being felt in increased production economies and that further improvements are being planned.

Reporting on new products, she said that the "No-Drip Ceiling Paint," recently introduced by the Merit Paint & Varnish Division, had met with acceptance unusual for a new product. Garland's Laboratories, she said, are completing development of a revolutionary new vinyl plastic wall paint and are working on several other developments in the field of floor compounds, roofing compounds and maintenance paints.

Mattiello Lecture to Be Delivered By Dr. H.F. Mark; To Speak on "New Types of High Polymers and Their Application in Paint and Varnishes"

The Annual Joseph J. Mattiello Memorial Lecture will be delivered this year by Dr. Herman Francis Mark, Director of the Polymer Research Institute at the Polytechnic Institute of Brooklyn.

Dr. Mark, a polymer scientist, will speak on "New Types of High Polymers and Their Application in Paint and Varnishes," at the annual meeting of the Federation of Paint and Varnish Production Clubs to be held October 3 to 5 at the Hotel Statler in New York City.

The committee which made the selection included A.E. Stauderman, Chairman, Louisville Club; P.O. Blackmore and W.J. Greco, New York Club; and H.H. Zimmermann, Chicago Club.

Dr. Mark was born in Vienna, Austria in 1895. He studied at the University of Vienna, and obtained his Ph. D. with W. Schlenk, summa cum laude in 1921.

That year he became an instructor at the University of Berlin and one year later joined the Kaiser-Wilhelm Institut fur Faststoff-Chemie in Berlin-Dahlem where he worked first as Research Fellow, later as Supervisor, and finally as Group Leader.



Dr. H. F. Mark

He joined the research staff of the I.G. Farben-industrie in Ludwigshafen on Rhine as Research Chemist in 1927, became Group Leader in 1928, and Assistant Research Director in 1930.

In 1932, he was appointed Professor of Chemistry and Director of the First Chemical Institute at the University of Vienna, where he stayed until 1938. After the invasion of the Nazis he was dismissed, and left Europe to become Research Manager of the Canadian International Paper Co. in Hawkesbury, Ont.

Dr. Mark became Adjunct Professor of Organic Chemistry at the Polytechnic Institute of Brooklyn in 1940. He was promoted to full professor in 1942 and appointed Director of the Polymer Research Institute in 1946.

His principle research has been in the field of X-rays and electrons and their use in studying the structure of matter, in the synthesis, characterization reactions, and properties of natural and synthetic macromolecules, such as cellulose, rubber, proteins, vinylpolymers, nylon, and other synthetic products.

Among the professional organizations with which Dr. Mark is affiliated are the American Chemical Society; the American Society of European Chemists and Pharmacists; the American Institute of Chemists; the American Society for X-ray and Electron Diffraction; the American Association for the Advancement of Science; the Faraday Society. He is Editor of the *Journal of Polymer Science*.

During the second World War, Dr. Mark supervised a project sponsored at the Polytechnic Institute by the Quartermaster General and was a technical aid of the Office of Scientific Research and Development, where he worked at the development of a snow-going vehicle—the so-called "Weasel"—and of an amphibious truck—the so-called "Ducqu."

NEWS

Harshaw Buys Zinsser; To Intergrate Research

The Harshaw Chemical Co., Cleveland, Ohio, has announced acquisition of Zinsser & Co. Inc. Hastings-on-Hudson, New York.

Zinsser operations will continue under present policies and management as a wholly owned subsidiary of Harshaw. Initial emphasis will be on new products, development and integration of research by the two companies.

At a recent organization meeting held recently in New York City the following directors of Zinsser were elected: J. L. Berston, H. W. Dingee, R. H. Giebel, W. J. Harshaw, W. C. Hovey, C. S. Parke, and A. D. Perry.

Dr. A. Burger continues as Research Director and Dr. F. G. Zinsser, who founded the company in 1897, retains his identity with the business as Chairman of the Advisory Committee.

Estimate High Damage To Frozen Tung Nut Crop

Damage estimates ranging from 75 to 100 percent, throughout the entire tung nut belt, have been unofficially received in Washington by Department of Agriculture and senators and congressmen. The widespread damage to the crop came as a result of the recent freeze.

Steps are being taken to speed disaster loans by the Department of Agriculture to the growers.

Gibson-Homans Expands

The Gibson-Homans Co. has purchased Protective Coatings Corp., with plants in Richmond, Calif. and Portland, Ore., it was announced by Norman M. Cornell, President of G-H.

Paul Battenfeld, president of Protective Coatings, will manage the Gibson-Homans West Coast Division from his headquarters in Richmond, assisted by Donald L. McKelvey at Portland and James E. Covert at Richmond.



This is the new million dollar Raffi & Swanson plant in Wilmington, Mass., where the latest in industrial finishes are being manufactured. Scheduled for formal opening May 14, the plant is now supplying the new Tweed multicolor architectural finish for public building and office walls.

P. O. Blackmore to Give Papers at FATIPEC, OCCA

Paul O. Blackmore, of Interchemical Corp., Newark, N. J., will represent the Federation of Paint and Varnish Production Clubs at the summer meetings of the Federation of Technical Associations of the Paint and Printing Ink Industries in Continental Europe (FATIPEC) and the Oil and Colour Chemists' Association of Great Britain.



P. O. Blackmore

the Oil and Colour Chemists' Association of Great Britain.

Mr. Blackmore, a member of the New York Club and a Past-President of the Federation, will present a technical paper at both of these meetings. He will be accompanied on the trip by Mrs. Blackmore. They will leave New York City on May 11th aboard the Queen Mary. Mr. and Mrs. Ralph E. Pike, of the E. I. duPont de Nemours & Co., Inc., Flint, Mich., will attend the Congress also.

The Congress, to be held in Spa, Belgium, from May 22 to 27 will have as its theme "Color and Color Matching" and Mr. Blackmore will present a paper entitled "The Status of Color Technology in the U. S. A." This work was authored by Mr. Blackmore, Mr. Pike, and Dr. Lou Wurzburg and Daniel Smith,

of Interchemical Corp. Mr. Pike, chairman of the Federation's Inter-Society Color Council Liaison Committee and a member of the Detroit Club, will also present a paper at the FATIPEC Congress. His subject will be "Application of Colormetric Measurements to the Description of Tinting Characteristics of Common Blue Pigments."

"Film Structure and Adhesion" will be the general title of the OCCA Conference which will be held at Llandudno, Wales, from June 7 to 11. Mr. Blackmore will present a report on the Federation's Research Program on "Film Formation, Film Properties, and Film Deterioration."

Following the OCCA Conference, the Blackmores will spend some time in London on company business and will return to the United States about July 1.

Atlas Sells Industrial Finishes Div. to Glidden

Purchase of assets of the Zapon Industrial Finishes Division of the Atlas Powder Co., Wilmington, Del. by The Glidden Co. has been announced by Dwight P. Joyce, Glidden President and board chairman.

Glidden will take over inventories, formulas, trademarks and certain other assets of the finishes plants at North Chicago, Ill., and Stamford, Conn.

Substantially all the sales and technical personnel of these plants will be employed by Glidden.

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BRAND

WC-130

a splendid "inside" story

Designed as a High Quality Vehicle for Interior Wall Sealers and Coatings to Provide Superior Color, Toughness, and Resistance to Alkalis and Cleaning Compounds.

WC-130, a BAKELITE Brand vinyl acetate resin latex, is a smooth, stable, fast-filming aqueous dispersion. Developed specifically for coatings applications, this latex features marked resistance to foaming and unusual electrolyte tolerance. Paint films based on this latex possess good water resistance together with all these other advantages . . . and show outstanding *retention* of these superior film properties on aging.

Initial exposure data on vinyl acetate resin latices looks very promising. Exterior paint formulations based on latex WC-130 are being exposure tested at sites in Vermont, New Jersey, Pennsylvania and Florida. Bakelite Company's Development Laboratories are continuing extensive investigations of latex WC-130 in many other coatings applications. Advance Technical Bulletin No. 1 gives formulations under test on exterior exposures.

For your information and assistance Technical Bulletin No. 225 provides suggested formula-

tions for interior applications such as plaster and wallboard sealer, various pigmented interior wall paints, wall patching compound, and tinting base together with manufacturing procedure and properties of these products made with BAKELITE latex WC-130. A list of tested pigments and extenders, plus cost data are included. For your free copies of Technical Bulletins No. 1 and No. 225, write Dept. GX-153



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The term BAKELITE and the Trefoil Symbol are registered trade-marks of UCC

NEWS

Ralph Wechsler Named President of Nopco

Ralph Wechsler has been elected President of Nopco Chemical Co.,



Ralph Wechsler

Harrison, N. J., manufacturers of industrial processing specialties, synthetic organic chemicals and vitamin products. He will succeed Thomas A. Printon, President since 1949. Mr. Printon will continue to serve as

Chairman of the Board.

Prior to his election, Mr. Wechsler had served as Treasurer. He has been connected with the firm since 1921 when he joined as a chemist. A few years later he became chief chemist and was responsible for manufacturing operations. He was elected to the Board in 1927 and in 1932 became Treasurer. He will also act as chief officer of Metasap Chemical Co., a wholly owned subsidiary.

Sells Naftone Interest

Harold M. Johnson has announced the sale of his interest in Naftone, Inc., producers of industrial chemicals and his resignation as a director and officer of the company.

Mr. Johnson, nationally known as a merchandiser of chemical additives, played an important part in the introduction and subsequent marketing of liquid driers, wetting and dispersing aids and fungicides to the paint and allied industries.

Glidden Sioux City Branch

The Glidden Co has announced the establishment of a new Branch Operation at Sioux City, Iowa, the 46th in the firm's nation-wide network of sales outlets.

Ralph F. Fox has been named manager. He comes to Sioux City from Omaha, where he served in a sales capacity for the company.

Centrifugal Pump Groups Vote To Set Up Standards

Manufacturers, users and designers of centrifugal pumps have voted at a general conference called by the American Standards Association to set up standards for pumps. The project will cover low-pressure process pumps such as the paint and chemical industries use.

A national committee will now be organized to develop American Standards for dimensions which will allow interchangeability of pumps made by different manufacturers.

J. G. Henderson, chairman of the Chemical Industry Advisory Board, the group that proposed the project to ASA, estimated that a \$6,800,000-a-year saving to the chemical industry alone would be effected by the standardization.

Minnesota Mining Forms Chem. Products Group

Formation of a chemical products group and appointment of Dr. B. J. Oakes as its General Manager has been announced by Herbert P. Buetow, President of Minnesota Mining & Manufacturing Co.

J. W. Selden was named Assistant General Manager of the group.

The firm has had a long standing interest in the rapidly growing chemical field by reason of its wide line of resins and varnishes manufactured at Hastings, Minn. Until recently most of these resins and varnishes were produced as raw materials for use in other 3M products.

H. N. Marsh in Army Post

Henry N. Marsh has been appointed Deputy Assistant Secretary of the Army (logistics and research and development), the Department of the Army announced.

Since 1952, Mr. Marsh has served as smokeless powder consultant to the Explosives Dept. of Hercules Powder Co., Wilmington, and as advisor on civilian and military matters. He has been granted a year's leave of absence by Hercules to accept this appointment.

Advance Solvents Acquired By Carlisle Chemical Works

Advance Solvents & Chemical Corp. of New York and its subsidiary companies have been acquired by Carlisle Chemical Works, Inc., of Reading Ohio.

Advance is an important manufacturer of driers used in the paint and printing industries, of stabilizers and plasticizers used in the rubber and plastic industries, and of numerous specialty compounds. Manufacturing facilities are located in Jersey City.

In addition to its domestic operation the company has a Canadian subsidiary Advance Solvents & Chemical Corp. of Canada, Ltd., St. Johns, Que., and carries on an export business through its subsidiary, Advance International, Ltd.

General Paint Begins Employee-Education Plan

The General Paint Corp., as part of its long-range program for company growth, has begun an employee-education plan in which it will bear 80% of the total cost of the course and needed books. The announcement was made by R. B. Robinette, President of the company.

Under the program, the employee himself does the choosing of any course which relates to his present job or would help prepare him for a better one. Any type of course may be chosen—college, trade school, correspondence, etc.

"General Paint is looking to the future," Robinette said, "and this is one of many practical programs of action we are inaugurating to advance the company's future as well as every member's."

Chem. Institute of Canada

The 38th Annual Conference of The Chemical Institute of Canada will be held in Quebec City, May 30, to June 1. Upwards of 500 delegates are expected to attend.

Among the topics to be discussed by various speakers on protective coatings are: the chemistry of oil drying; fundamental knowledge and the coatings industry; infrared spectroscopy techniques in analyzing paint materials.

NEWS

J. S. Congleton Chairman Of Federation Host Group

John S. Congleton has been named the General Chairman of the Host Committee for the 33rd Annual Meeting of the Federation of Paint and Varnish Production Clubs to be held in New York City on October 3, to 5.

Mr. Congleton, of Maas & Waldstein Co., is President of the New York Paint and Varnish Production Club. He will head a group of 28 New York Club members delegated to serve on five sub-committees: Floor, Registration, Entertainment, Banquet, and Dance.

The rosters of these committees is as follows:

Floor Committee: Moe Bauman, Farnow, Inc., Chairman; S. Leonard Davidson, National Lead Co.; Edward Dunn, Jr., National Lead Co.; Herbert Hillman, Eaglo Paint & Varnish Co.; Sidney Lauren, Johns-Manville Corp.; Sidney Levinson, D. H. Litter Co.; John Lundgren, National Lead Co.; John Oates, Subox, Inc.; W. E. Santoro, Monroe Sander Corp.; Henry Stanley, Brooklyn Paint & Varnish Co.; and Ray Whitney, National Lead Co.

Registration Committee: Benjamin Chatzinoff, 20th Century Paint & Varnish Co., Chairman; Joseph Cantor, N. Y. Woodfiners' Supply Co.; Edward Fischer, Standard-Toch Chemicals, Inc.; Alex Haber, Arnesto Paint Co., Inc.; William Lawrence, Flood & Conklin Mfg. Co.; Francis Rogers, Adco Chemical Co.; E. G. Shur, Interchemical Corp.; Louis Sloan, Adelphi Paint & Color Works; and Julius E. Spector, National Chemical & Mfg. Co.

Entertainment Committee: C. A. Aloia, Sun Chemical Corp., Chairman; and S. R. Mountsier, Jr., Whittaker, Clark & Daniels, Inc.

Banquet Committee: E. Dale Albert, M. J. Merkin Paint Co., Chairman; Ralph Charlton, Congoleum-Nairn, Inc.; and Carl En-

gelhardt, Brooklyn Paint & Varnish Co.

Dance Committee: Ernest Paterno, Technical Color & Chemical Works, Chairman; Dean Anderson, Jr., Brooklyn Paint & Varnish Works; and William Greco, Socony Paint Products Co.

Sun Chemical Sales Jump Credited to Color Vogue

A doubling of Sun Chemical Corporation's sales volume within the next ten years was described by Ralph C. Persons, President, as management's objective at the company's annual meeting held recently in its Long Island City, New York, headquarters.

Mr. Persons pointed to the growing use of color in all aspects of everyday life in America. "This trend has resulted in each of Sun Chemical's three product groups (Graphic Arts; Structural Waterproofing, Paint and Products Finishing; and Chemical) increasing sales of materials used to inject color into what were formerly drab or colorless products. Some of these new or increased uses of color are in such different fields as two and three-toned automobiles, colored appliances, multi-toned textile and plastic prints, colored newspaper ads, and pigmented concrete floors and building fronts." In many cases, he explained, the company's divisions had been responsible for the increased use of color, and furthermore, intensive research is underway to stimulate the availability of color for products at no, or slight, additional cost.

New Koppers' Laboratory

A large new development laboratory is planned by the Chemical Division of Koppers Co. adjacent to its newly-opened development plant at Kobuta, Pa., according to Fred C. Foy, President of the company.

The laboratory, which will consist of three buildings connected in U-shape, will cover 43,000 square feet. Its purpose will be to take products coming out of Koppers' Verona, Pa., Research Center and test and develop them for utilization in various fields. Completion is scheduled for early in 1956.

PaVaC Award Presented To Dr. Roy H. Kienle

The PaVaC Award, conferred for outstanding contribution to the advancement of the protective coatings industry and the New York Paint and Varnish Production Club, was presented to Dr. Roy H. Kienle of the American Cyanamid Co.



R. H. Kienle

The presentation was made by John Congleton, President of the New York Paint and Varnish Production Club, at the May 5 meeting at the Brass Rail Restaurant, New York City.

Dr. Kienle has been one of the pioneers in the field of polymer technology and has done significant fundamental research in the field of alkyd resins. He was the Mattiello Lecturer at the 1949 Convention of the Federation and represented the Federation at the FATIPEC Congress in Holland and the OCCA Convention in England in 1953.

He has been active in the Technical Committee of the New York Club.

In conjunction with the presentation, there was a talk on "Industrial Evolution and the Paint Industry" by Dr. Robert C. Swain, Vice President in Charge of Research and Development at American Cyanamid.

Southern Representative

Carbon Dispersions Inc., Newark, N. J., has appointed A. J. Passonno its representative in Alabama, Mississippi, Georgia and Florida. His headquarters are P.O. Box 623, Tampa, Fla., and Room 400 Red Rock Bldg., 187 Spring St. N.W., Atlanta, Ga.

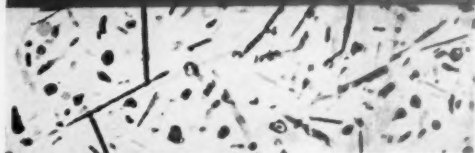
9th Chemical Exposition

The 9th National Chemical Exposition will be held in Cleveland, Ohio, November 27-30, 1956. The show will be under the joint auspices of the Chicago and Cleveland Sections of the American Chemical Society and will be held in the huge, modern Public Auditorium of the city of Cleveland.

high

AZO ZZZ-22

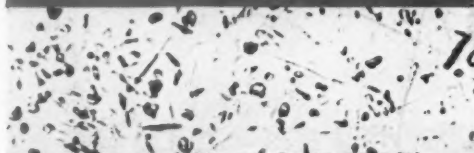
A high oil absorption Zinc Oxide having large Acicular Particles which gives heavy body



medium

AZO ZZZ-11

A medium oil absorption Acicular Zinc Oxide imparting exceptional weathering qualities to exterior paints

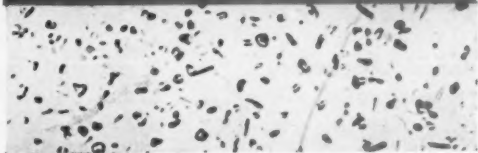


AZO acicular lead-free zinc oxide is a superior pigment available in a wide range of oil absorptions

low

AZO ZZZ-33

A definitely Acicular type with a lower oil absorption, but chemically identical with AZO ZZZ-11 and AZO ZZZ-22



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NEW MATERIALS & EQUIPMENT

A MONTHLY MARKET SURVEY

This section is intended to keep our readers informed of new materials and equipment. While every effort is made to include only reputable products, their presence here does not constitute an official endorsement.



PATTERSON

AGITATOR

For Wide Range of Mixing

The "Unimixer Agitator," available in 1 through 5 horsepower sizes, is claimed to be well suited for mixing, stirring, blending, coloring, thinning and tinting, dissolving, aerating, absorption of gases and suspension of solids. The unit can handle liquids up to 2000 centipoises in viscosity, and products containing semi-solids to be dissolved or otherwise processed, according to the company.

Noteworthy features claimed by the company include positive elimination of oil leakage around the shaft; and ease of interchanging the lower anti-friction bearing with a combination pressure type stuffing box with oil-less bronze bearing. The Patterson Foundry and Machine Co., East Liverpool, Ohio.

ROTARY PUMP

Self-Priming

These rotary type pumps are said to combine the basic self priming, no stuffing box, no shaft seal features of the Vanton Flex-

i-liner pump with a design that permanently protects all bearings from fumes or chemical attack.

Designated as the "XB" series (to signify that bearings are external) the pumps are available in capacities from fractional to 5 g.p.m., with 0-50 psi discharge pressures.

Both shaft bearings are housed in a cast iron pedestal which is external to the pump itself, and the center bearing is completely enclosed within the stainless steel rotor and sealed off by a stainless steel plug on one side and a carbon bearing-guard on the other. End plates, formerly of aluminum alloy, are now being Shellcast in stainless steel by Cooper Alloy.

Bulletin XB on request from Vanton Pump & Equipment Corp., Div. of Cooper Alloy Corp., Hillside, N. J.

PLASTICIZER

Fire Retardant Type

A fire retardant plasticizer called "Celleflex CEF" (tris B-chlorethyl phosphate), is currently available in drum quantities. It is produced by a new process developed by the company and is claimed to be chemically more stable than competitive materials.

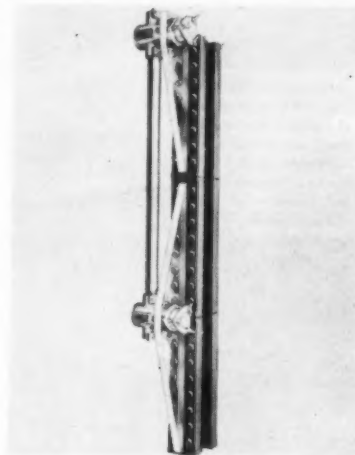
Product is said to give fire retardant properties to a variety of molded and extruded plastics and surface coatings including vinyls, cellulose acetate, ethyl cellulose, nitrocellulose, butadiene-acrylonitrile copolymers, rubber chloride, etc., where its clear-water-white color permits its use in transparent and pastel shaded items.

Company says that at the present time, there are three broad avenues of potential use for the product: in protective coatings such as paints, lacquers and shellacs; in resins and plastics; and in textile finishes. Celanese Corporation of America, 180 Madison Ave., New York 16, N.Y.

LIQUID LEVEL GAGE

Improved Type

Company says that these redesigned and improved "Jerguson Gage Illuminators" give an even diffusion of light over the entire length of the gage glass, with no glare spots or blinding areas, enabling the engineer to see the liquid level easily and clearly under all conditions.



JERGUSON

Illuminators are available in explosion-proof or non-explosion-proof models. The light unit for the explosion-proof models is approved by Underwriters' Laboratories for their Standard for Electric Lighting Fixtures for use in hazardous locations for Class 1, Group D Services.

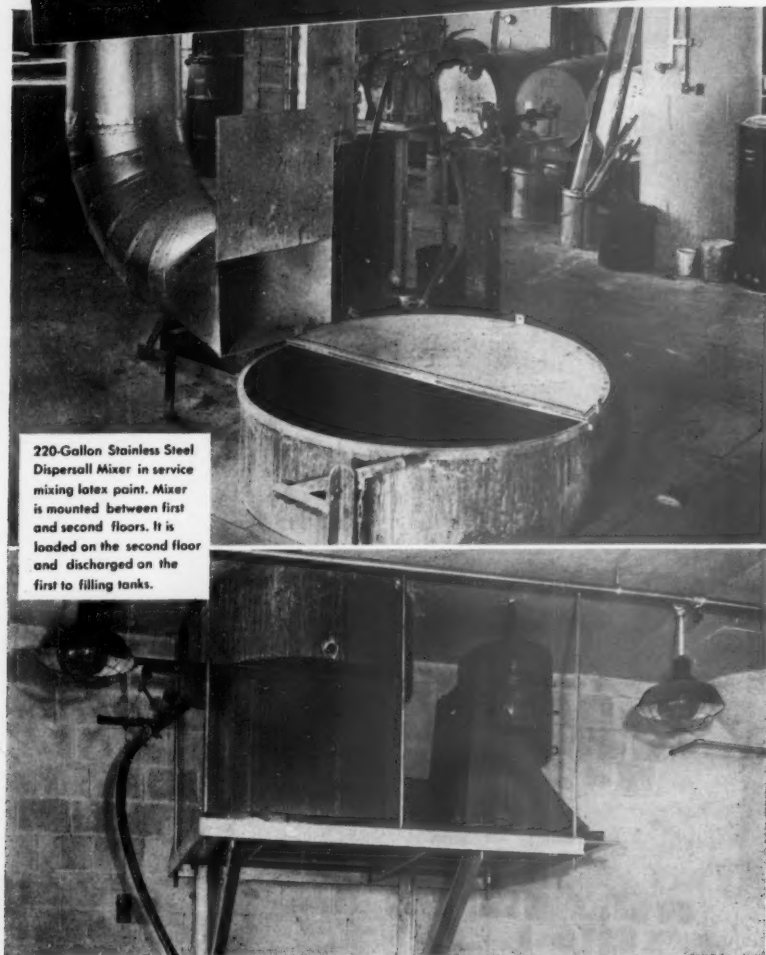
Single and Double Section styles of illuminators for all sizes of gages are available. Standard models operate on 110-120 volts AC or DC. Jerguson Gage & Valve Co., 80 Fellsway, Somerville 45, Mass.

EPOXY RESIN EMULSION

Wide Compatibility

Company says that epoxy resin emulsion is compatible with, may be blended with, and may be compounded with almost all resin emulsions or plasticizers to meet the most rigorous requirements. When

7 REASONS for INVESTIGATING The ABBÉ DISPERSALL MIXER



220-Gallon Stainless Steel Dispersall Mixer in service mixing latex paint. Mixer is mounted between first and second floors. It is loaded on the second floor and discharged on the first to filling tanks.

- ① You get complete dispersion of all ingredients, regardless of formulation.
- ② You cut mixing time in half or better.
- ③ You get maximum color values from a minimum of color.
- ④ You do the entire job in ONE machine, over the entire range of your color card.
- ⑤ You fill directly from the mixer (or pump) to storage.
- ⑥ You can run red, or blue or green and be ready for white in ten minutes (slightly longer for oil paints).
- ⑦ You pay off the first cost of the machine in a year or less.

Write for Catalog 68 for the complete story.

Address Department 64

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50 CHURCH STREET • NEW YORK 7, N. Y.

NEW MATERIALS — EQUIPMENT

blended with polyamid resins and catalyst, it forms decorative, protective coatings for metal and enamel coatings and varnishes, paper and wood.

The milk white resin emulsion containing 40% epoxy solids, the melting point of which is 67 to 70° C., approx. pH 6.9, is stable and compatible in acid, alkali and salt mediums.

The dried film is colorless, odorless, clear, flexible, lustrous, non-tacky and water resistant.

Various pigments and fillers can be blended with the epoxy resin water emulsion. Concentrated paints may be easily reduced to the desired consistency with water and may be applied to wood, plaster, metal, brick, and cement. A highly gloss surface to a semi-gloss effect may be obtained. It may be used as a binding agent for calcimine water paints. It can be used for concrete, stucco paint, masonry coatings and insulating varnishes.

Chemical Products Corp., Box 61, Little Falls, N. J.

SILICONE FLUID

Grinding, Dispersing Aid

"SF-69" silicone fluid is claimed to aid a paint plant in manufacture, where it acts as a grinding and dispersing agent; in application, where it is said to stop flotation, eliminate flow lines, silking and orange peel, and reduce or eliminate pattern effects often found in enamels; and in performance, where it is said to increase water resistance and stain resistance, impart mar resistance and improve weather resistance.

Company says this is a 100 per cent silicone fluid soluble in alcohols as well as both aromatic and aliphatic hydrocarbons.

General Electric, Chemical Materials Dept., Chemical Div., One River Rd., Schenectady, N. Y.



For high quality
ALUMINUM PAINTS
and economy in raw material costs ...
formulate with

VELSICOL HYDROCARBON RESINS

**AD-21
and
AB-11-2**

AVAILABLE IN EITHER SOLID OR RESIN SOLUTION FORM

- Provides high lustre and good leafing.
- Chemically neutral, assuring long leaf retentivity.
- Soluble in aliphatic and aromatic naphthas.
- Compatible with bodied vegetable and marine oils.
- Resistant to water, alkalis, aqueous acids and solvents.
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**NEW
MATERIALS — EQUIPMENT**

MODIFIED RESIN

Wider Compatibility

"G-E 75121 Methylon Resin" is now produced in a viscosity range of J to L only. Manufacturer says that at this lower degree of polymerization, product's compatibility is significantly improved. Greater stability has also been observed in every finished coating formulation in which it has been tested, according to the company.

Outstanding resistance to boiling water, detergents, soap solutions, alkalies, oxidizers, solvents and abrasives, company says, make it

one of the most effective resins for formulating drum and tank car linings, motor finishes, industrial primers, appliance and specialty corrosion-resistant coatings.

General Electric Co., Chemical and Metallurgical Div., Schenectady, N.Y.

SURFACE TREATED KAOLIN

Hydrophobic Type

A surface treated kaolin having hydrophobic characteristics opens up important new applications in organic systems according to the company.

Manufacturer says that some of the properties of ASP 1300 are low absorption, ease of dispersions in organic systems and resistance

to water. It should be evaluated in paints, inks, rubbers, reinforced plastics and other organic systems. It is not recommended for aqueous systems.

ASP 100 and ASP 1300 have the same particle size distribution. They differ only with respect to the surface treatment. Minerals & Chemical Corp. of America, Metuchen, N.J.

BARREL HANDLING TRUCK

With Automatic Clamping Hook

"Valley Craft Barrel Cart Model 600," is said to be equipped with an automatic spring actuated bar that allows a hook to slip over the barrel edge as the truck is moved against the barrel without the operator touching either the hook or barrel.



You develop the best weathering qualities in a film by

1. Reducing the pigment agglomerates to optimum size, and
2. Putting the pigment particles in a matrix of the binder.

R-B-H dispersions offer you both advantages.

R-B-H . . . for finishes of integrity.

R-B-H *Dispersions*

**DIVISION OF INTERCHEMICAL CORPORATION
DISPERSION TECHNICIANS
BOUND BROOK, NEW JERSEY**

Pigment dispersions in nitrocellulose; ethyl cellulose; urea formaldehyde; vinyl and alkyd resins; chlorinated rubber and other plastic binders.

R-B-H IS A TRADEMARK OF INTERCHEMICAL CORPORATION



VALLEY CRAFT

Heavy barrels stored in contact with each other can be easily loaded on the truck by a single operator without moving them apart because of this automatic clamping hook, according to the company. Special design of the loading shoes is claimed to provide easy tipping of the heaviest barrels. A special kick stand is also incorporated that allows the truck to stand in a verticle position when not in use. Valley Craft Products, Inc., 760 Jefferson Ave., Lake City, Minn.

XYLOL-TYPE SOLVENT

From Coal Tar

Company announces doubled production and lower bulk prices for its "No. 150" Xylol-type solvent. The product is derived entirely from coal tar, and is substantially

*An old hand
helps a new product*



"LIQUID CARBONIC CO₂ HELPS KEEP OUR PRODUCTION COSTS DOWN..."



says W. B. Winkler,
Factory Manager,

T. F. WASHBURN COMPANY,
Chicago, Illinois

"In producing BURNOK, the thixotropic vehicles which make the revolutionary new dripless paints possible, Red Diamond CO₂ helps us cut costs and serves us in many important ways," reports Mr. Winkler.*

CO₂ Can Help You, Too. This versatile gas is now aiding leading paint manufacturers in more than seven important ways—from cooking to packaging.

Get The Facts And Figures—send for LIQUID's report prepared specially for the paint industry. Photos, diagrams, costs and process details give you the complete story on how CO₂—combined with LIQUID know-how—can be of tremendous advantage in your operation. Your complimentary copy is waiting for you. Simply mail the coupon below.

*Trade Mark T. F. Washburn Company

FREE

A fact-filled report on how CO₂ can cut your costs and improve your product. Mail the coupon today.



THE **LIQUID** CARBONIC CORPORATION
Compressed Gas Division
3128 South Kedzie Ave., Chicago 23, Ill.

Please send me your report on "The Use of CO₂ in Paint, Varnish and Other Alkyd-Type Resin Manufacturing."

Name and Title _____

Company _____

Address _____

City _____ Zone _____ State _____

NEW MATERIALS—EQUIPMENT

Xylene which has been refined only to the point of wide applicability in wire enamels, marine and industrial paints, and in several processes in the rubber industry where solvents of high dissolving power are required. Company says product is not so highly refined as to have the water-white color characteristic of refined Xylene. Crowley Tar Products Co., 271 Madison Ave., New York City, N. Y.

STOP CLOCKS

For Diversified Timings

Several new models of large dial stop-clocks have spring-wound

movements for 48-hour running per winding. They operate exactly the same as stop watches and are offered with either 4 inch or 8 inch diameter dials. Calibrated in either minutes or seconds they come in desk models and wall-hanging models.

Because of the size and legibility of the dials, quick and easy readings of elapsed time can be made without squinting, reducing the risk of errors likely to occur with conventional small-dial stop watches, according to the company.

Manufacturer claims that unlike delicate stop watches, these "Durachron" timers can withstand

considerable rough handling without impairment of performance. Accuracy is said to be within .016 per cent of reading.

All models, according to the company, are capable of three methods of timing control: (1) Time-out. Action can be stopped, then resumed without returning to zero. Such control is desirable when the action observed is "interrupted." (2) Straight timing. Hands can be stopped then returned to zero and started over. (3) Snap-back timing. Elapsed time can be read "on the fly" while the sweep hand is in motion hands can be snapped back to zero without stopping the action, so that the sweep hand starts around again instantaneously. Andrew Technical Service, 6972 N. Clark St., Chicago 26, Ill.

DIAL THERMOMETERS

Easy to Read

Quick, accurate, on-sight temperature readings are claimed for a series of dial thermometers. Simplified design and the use of stark black and white contrasts in the dial faces are said to greatly improve dial thermometer readability. All dial faces are 4 inches in diameter.



PRECISION

The thermometer itself is bi-metallic and accurate to 1% of range at any point of indication, according to the company. Stems are 1/4" stainless steel, all-welded construction, and come in standard lengths of 4, 6, 9, 12, 18, and 24 inches for bottom or back connection. Separable sockets are available.

Precision Thermometer & Instrument Co., 1434 Brandywine St., Philadelphia 30, Pa.

NOW You Can Stop Pressure Build-Up in Aluminum Paints With **SYLOID® AL-1**

Tests conducted by the Aluminum Research Laboratories of Aluminum Company of America "... indicate that SYLOID AL-1, when used in concentrations up to 1% based on total weight of paint, effectively retards pressure development in ready-mixed varnish base aluminum paint containing moisture in concentrations up to 0.5%."

This problem of pressure build-up in ready-mixed aluminum paints has long been a serious one. Now this pressure development can be stopped. The leaf stability of the paint is not affected and the drying rate is not retarded.

For complete information on SYLOID AL-1, including results reported by Aluminum Research Laboratories, write

Progress Through Chemistry

DAVISON CHEMICAL COMPANY

Division of W. R. Grace & Co.
Baltimore 3, Maryland

PRODUCERS OF: CATALYSTS, INORGANIC ACIDS, SUPERPHOSPHATES, TRIPLE SUPERPHOSPHATES, PHOSPHATE ROCK, SILICA GELS, AND SILICOFLUORIDES. SOLE PRODUCERS OF DAVCO® GRANULATED FERTILIZERS

MCDANEL

VITREOUS PORCELAIN Grinding Balls MADE FROM A SPECIALLY DEVELOPED BODY FOR...

Long Wear

McDaniel Ceramic Grinding Balls are fired over a long period of time at controlled temperatures, assuring complete vitrification. This care in manufacturing has given them an impressive history of long wear and dependable grinding.

Purity

McDaniel Ceramic Grinding Balls, sold since 1919, have been the standard in ball mill operations where purity is of prime importance. They are manufactured with exacting control, assuring uniform content and pick up, lot after lot.

Better Impact Resistance

It is the specially developed body which gives McDaniel Ceramic Grinding Balls their excellent impact resistance. After firing, a slow, thorough cooling process prevents any strains being set up. It is this almost complete absence of cooling strain which prevents chipping or cracking.

Uniform Grinding

Naturally, uniformity is of prime importance in any grinding operation . . . both in grinding media and end result. McDaniel Ceramic Grinding Balls are hand rolled with no seams to break or chip.

WRITE FOR YOUR MCDANEL INDUSTRIAL CERAMIC CATALOG TODAY!



MCDANEL
REFRACTORY PORCELAIN COMPANY
BEAVER FALLS • PENNSYLVANIA



NEWS

Styrene Monomer Plant To Operate In Brazil

Koppers Co., Inc., The Firestone Tire & Rubber Co. and Brazilian interests have joined in forming a new company which will construct and operate a styrene monomer plant at Cubatao, Brazil.

The announcement was made in a joint statement by George M. Walker, Vice President and General Manager of Koppers Chemical Div., and Lee R. Jackson, Pres-

ident, Firestone Tire & Rubber Co.

Under the name of Companhia Brasileira de Estireno (Brazilian Styrene Co.), the group plans to erect a plant capable of producing 10 million pounds of styrene monomer annually. The production will go mainly to Brazilian manufacturers of the plastic, polystyrene, while a lesser portion will go into the making of styrene latices and high styrene polymers such as are used in the making of shoe soles.

In making the styrene, the plant will use ethylene from the adjacent government-owned refinery, and benzene. The latter will be imported. Finished styrene monomer will be transported to users by tank truck.

Dr. G. K. Nelson to Head A-D-M New Products

Archer-Daniels-Midland Co. has announced the formation of a New Products Development Department to be headed by Dr. George K. Nelson.



G. K. Nelson

The company makes 850 products which range from livestock and poultry feeds to chemicals. These are used directly or indirectly by every major U.S. manufacturing industry.

In his new position Dr. Nelson will evaluate the market potential for new products developed in ADM research laboratories and will be responsible for the introduction of new products. He also will supervise the company's market research activities. Other major functions performed by the department will be uncovering new markets for products now manufactured by the company and determining what new products and processes are needed in industry.

Before joining ADM, Dr. Nelson spent two years with the Celanese Chemical Division's Product Development Dept. as Assistant Manager. Prior to that he had done product development work for Shell Development Co., a research affiliate of Shell Oil and Shell Chemical Companies.

*New Star Performer
in Coatings!*



**gives your coatings
these general advantages**

- Excellent resistance to fats, oils, greases
- Excellent stability to light and oxidation
- Excellent adhesion to most non-metallic surfaces
- High moisture vapor transmission
- Ease of compounding paints
- Ease of application, easy cleaning of equipment
- Fast drying and immediate topcoating
- Minimum non-persistent odor during application

Nopco 1572-R helps make your coatings better in many ways. It makes exterior masonry paints that let moisture *through* without peeling, but keep alkali *in*. It makes primer-sealers that can be top coated within two hours of application. It improves industrial coatings as well as interior flat wall paints. There is much more we'd like to tell you about Nopco 1572-R, but space prevents. Won't you write for full information, today?

Nopco Chemical Company, 502 Industrial Street, Harrison, N. J.



PLANTS: Harrison, N. J. • Cedartown, Ga. • Richmond, Calif.

New Troy Representative

The Troy Chemical Co., New York City, has announced the appointment of Palmer Supplies Co., Cleveland, Ohio, as its exclusive representative in the northern half of Ohio. The announcement was made by Elias Singer, Technical Director of Troy.

Benj. Moore Buys Sillers

Benjamin Moore & Co. has purchased Sillers Paint & Varnish Co. of Los Angeles. West Coast operations of both companies will continue under present policies and management, according to B.M. Belcher, President of Benjamin Moore.



Now we make latex-base interior paints with regular equipment in 3 easy steps

With Cargill EVT-50 we can manufacture a superior flat latex-base paint on standard plant equipment just as easily as we now make conventional oil-based paint. Costly and troublesome steps are eliminated!

Because Cargill EVT-50 is a stable, *uniform* vehicle with controlled particle size, we can manufacture paint of *consistently uniform quality* . . . every batch the same.

Cargill EVT-50 contains both synthetic latex and oleoresinous polymers—balanced to give the best properties of each.

With this complete vehicle we can turn out more and *better* interior paint, with amazing durability and adhesion on all interior surfaces, including wood. When dry, the film is more permeable to water vapor than conventional latex-base paints.

HERE'S HOW CARGILL EVT-50 SAVES UP TO 60% PRODUCTION TIME

CONVENTIONAL LATEX METHOD

- Cook Casein
- Emulsify Alkyd (Optional)
- Dissolve Preservative
- Disperse Thickener
- Grind Pigment
- Mix
- Package

EVT-50 METHOD

- Disperse Pigment
- Mix
- Package

You eliminate 4 steps!

Want more facts? Send the convenient coupon below for complete information on Cargill EVT-50. There is no obligation, of course.

Cargill, Inc.

Vegetable Oil Division

600 F1 Flour Exchange Bldg., Minneapolis 15, Minn.



Name _____

Company _____

Your position _____

Street Address _____

City _____ Zone _____ State _____

PERSONNEL CHANGES

ADELPHI PAINT & COLOR

Murray Levy, Chester Rockfield, William Lowe and Paul Binckley have joined the sales staff, it was announced by Bernard N. Cullen, Sales and Advertising Manager.

Mr. Levy will handle Brooklyn and Long Island; Mr. Rockfield, Central Ohio; Mr. Lowe, Eastern and Central New York State; and Mr. Binckley, Central Pennsylvania.

HAEUSER SHELLAC

Edward W. Melvin, Jr. has been appointed to the sales staff. He will be in charge of industrial sales, according to John D. Baruc, Vice President in charge of sales.



E. W.
Melvin, Jr.

Mr. Melvin has been associated with the industry since 1945, when he joined the staff of the National Lead Co. as a sales trainee for pigments and chemicals. After a period of four years as a technical salesman, he was appointed Sales Manager for the Atlantic Branch. He served in that capacity for five years.

PONTIAC VARNISH

Lawrence J. Kollar has been appointed Director of Research, it was announced by C. H. Hutchins, President.



L. J.
Kollar

Mr. Kollar graduated from North Dakota State College in 1936 with the degree of B. S. in chemistry, majoring in paint and industrial chemistry courses. He began his professional experience in the laboratory of the Lilly Varnish Co., Indianapolis; and moved to Rinsed-Mason Co., Detroit, in 1939 as assistant head of the Industrial laboratory. Since 1948, he has served as head of the Industrial-Automotive laboratory at Berry Bros., Detroit.



3 reasons why Reichard-Coulston IROX red oxides make rich enamel and paint shades

(1) High bulk, (2) fine particle size, (3) bright colors—these qualities of REICHARD-COULSTON IROX Red Oxides make for rich enamel and paint shades.

Manufacturers prefer IROX Red Oxides for other reasons, too... Among them: IROX Reds' tinting strength and clean tints are cost-cutters for shading needs. And REICHARD-COULSTON IROX Reds'

shades range from light red to maroon.

These are just a few of the reasons why REICHARD-COULSTON IROX Reds and other iron oxides are so widely used. Learn what REICHARD-COULSTON reds, yellows, umbers, siennas, and metallic browns can do for your production. For free laboratory samples and technical data, write today.



Reichard-Coulston, Inc.
15 EAST 26th STREET, NEW YORK 10, N. Y.

CLEMENT COVERALL

Virgil N. Sheets has joined the company as Vice-President in charge of Research and Development. He will be responsible for new and special product applications and will be available for customer consultation in decorative and productive coatings.

Mr. Sheets was associated with the Research Division of The Rohm and Haas Co. for the past nineteen years as head of the Coatings Section. Prior thereto, he was associated with Interchemical Corp. He is presently a member of the American Chemical Society and the Philadelphia Production Club.

PUBLICKER INDUSTRIES

James H. McCollough has been appointed midwestern sales representative for Publiker Alcohol and Chemical Sales Corp., marketing subsidiary of Publiker Industries Inc., according to H. A. Bonyun, Jr., General Sales Manager. His headquarters will be in Chicago. He was formerly sales representative for the Pittsburgh, Buffalo, Cleveland and Rochester area, with headquarters in Pittsburgh.

Edward R. Drummond, of the New York office, has been named sales representative for the territory formerly supervised by Mr. McCollough, with headquarters in Cleveland.

MAHLER INDUSTRIES

Edward M. Wanderman has been elected Vice President and Director of General Sales. He has been connected with the protective coatings industry for many years and for the past four he was General Sales Manager for France, Campbell and Darling, Inc.

BAKELITE

Dr. Frederick H. Roberts has been appointed Director of Research it was



F. H.
Roberts

announced by George C. Miller, President of this Plastics Division of Union Carbide and Carbon Corp. Dr. Roberts joined Union Carbide in 1934 following his graduation from the University of Chicago with a Ph. D. in chemistry. Since 1946 he has been Director of Plant Laboratories, Carbide and Carbon Chemicals Co., South Charleston, W. Va., another Division of Union Carbide and Carbon. He will have his office at the laboratories in Bloomfield, N. J.

AMERICAN CAN

Dr. Randall Royce has been appointed Manager of the Atlantic division laboratory at Newark, it was announced by Dr. R. H. Lueck, Vice President in charge of research and technical service.

Dr. Royce had been Assistant Manager of the firm's Central Division technical service laboratory at Maywood, Ill.

He began his career with the company in 1934 as a chemist in Maywood. Subsequently he served for several years as a technical advisor in the Central Division sales department. In 1942 he returned to the Maywood laboratory as a chemist. He held a number of supervisory jobs before becoming Assistant Manager in 1951.

BUREAU of STANDARDS

Louis E. Barbrow has been appointed Chief of the Photometry and Colorimetry Section, Division of Optics and Metrology, of the National Bureau of Standards. He will direct the research, development, and testing program in the field of photometry, spectrophotometry, colorimetry, aviation lighting and visual landing aids.

Mr. Barbrow has been with the Bureau since 1927 and has made many contributions in the fields of photometry and lamp testing. He was in charge of the NBS photometric work that resulted in the successful establishment of the Waidner-Burgess standard of light—a blackbody operating at the temperature of freezing platinum—which serves as the fundamental basis for the national and international system of photometric units now in effect.

get acquainted with the newest addition to

the **WILLIAMS LINE** of

COPPERAS TYPE PURE RED IRON OXIDES

OUR NEW **100** SERIES

Available in 6 Shades ranging from
a Light Salmon Red to a Medium Maroon
R-2200, R-2900, R-3200, R-3800, R-4800, R-5800

Broad range of applications includes paints, rubber, building materials, leather finishes, plastics, paper, etc. Let our samples prove the value of these pigments. See your Williams representative or write us direct.

Compared with our other standard Copperas Reds, the "100" Series is

Brighter in color
Finer in particle size
Lower in oil absorption
Higher in purity
--at no increase in price!

WILLIAMS
COLORS & PIGMENTS

C. K. Williams & Co.

E. ST. LOUIS, ILL. • EASTON, PA. • EMERYVILLE, CAL.

W. RONALD BENSON, INC.

Frank H. Jefferson has become an associate of W. Ronald Benson, Inc., paint raw materials sales agents in Seattle, Washington.

He recently spent several days in San Francisco visiting the main plant of The California Ink Co. for a complete briefing on its color systems, vehicles, and other paint raw materials.

Mr. Jefferson is currently an officer of the Puget Sound Chapter of the Paint Club and is active in the Pacific Northwest Paint & Varnish Production Clubs.



F. H.
Jefferson

EASTERN STATES CHEMICAL

Edward A. Von Doersten has been appointed Division Manager for the newly established Chicago operation, according to an announcement from J. R. Caudle, Vice President, Sales.

He will also direct the sales of all products through the company's new water terminal that it has established to serve its customers throughout the midwest.

OLYMPIC STAINED PRODUCTS

Gene Bliss has been appointed to manage the Stain Division, it was announced by Burr Odell, General Sales Manager of the firm. For the present will have his offices at the Seattle, Washington manufacturing plant.

INTERCHEMICAL

Werner F. Goepfert has been appointed Manager of the Technical Service Department, International Division, according to an announcement by Joseph G. Morris, Division President.



W. F.
Goepfert

In his new position Mr. Goepfert will be responsible for technical coordination for the corporation's overseas affiliates and the

manufacturing organizations with it has "know-how" agreements.

He was most recently Personnel Manager of the central research laboratories in New York, and has been with the corporation in various technical and administrative positions since 1939.

BERRY BROTHERS

Robert L. Racey has been appointed Trade Sales Manager, ac-

cording to an announcement from W. M. Gibson, President. He comes to the firm from the parent organization, the American Marietta Co.

In his new position Mr. Racey will be in charge of all trade sales operations for the company's nation-wide dealer and distributor organization which handles a wide range of paints, varnishes and industrial finishes.

Mr. Racey joined the Valdura Division of the American-Marietta Co. in 1938. He transferred to the Marietta Paint & Color Division where he ultimately became Advertising Manager and Assistant Sales Manager. His most recent position was Assistant Manager over all Trade Sales Divisions at the home office in Chicago.



R. L.
Racey

DEWEY and ALMY

Oscar W. Kaalstad has been appointed eastern sales representative, according to an announcement from Bruce M. Bare, organic chemicals Sales Manager, Dewey and Almy Chemical Co., division of W. R. Grace & Co.

He will represent the company in an area including the southern half of New Jersey, Maryland, Delaware, Pennsylvania, Virginia, the Carolinas, Georgia, and Florida. He will report to Thomas Tarbox, eastern Sales Manager, Newark, N. J.

VULCAN PAILS for Your Paints

Leading manufacturers of Paint, Varnish and Lacquer have come to DEPEND upon the high quality of VULCAN Pails and Drums.

Vulcan Steel Containers are made in all practical sizes with a wide selection of pouring nozzles and spouts, with Hi-Baked Interior Linings, and Colorful Lithographing.

There's a Vulcan Pail and Drum designed especially for your product.

Made in
the

"HEART
O'
DIXIE"

Vulcan Steel Container Company is known for its fast flexible "personalized" service. Call or write Vulcan for all of your Pail and Drum needs!

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Main Office and Factory

3315 N. 35th Ave.
BIRMINGHAM

(P. O. Box 786)
ALABAMA



Look at ALL the facts about EXTERIOR LATEX PAINTS!

They're weatherproof, alkali-resistant, self-cleaning, let masonry breathe . . . read about these and many more of their outstanding properties, all proved by tests.

A leading western publication recently cited the four properties above as the criteria of an "ideal" masonry paint. We have years of laboratory and field tests showing that paints made with Dow Latex 512-K (styrene-butadiene) have these four . . . and many more!

They also have excellent packaging stability. There's no problem of settling, rusting, color loss or spoiling in the can.

They're highly resistant to rust stains as well as to alkali. Latex paints gradually chalk to provide an ideal repaintable surface. And they have the many advantages so popular

in interior latex paints . . . quick drying, lack of painty odor, ease of application, fast equipment clean-up!

When you make or buy an exterior paint, we ask you first to look at all of the facts . . . facts that can be proved by actual tests. Then we're satisfied that you'll choose an exterior paint made with Dow Latex 512-K. For further information write for the booklet "Dow Latex 512-K for Exterior Latex Paints." THE DOW CHEMICAL COMPANY, Midland, Michigan, Plastics Sales Department, PL 485F-1



Notice the absence of rust staining or ground stain on this styrene-butadiene latex exterior paint job. The surface stays clean and fresh and will not water-spot. The satisfied owner of this San Francisco home is proud of the beauty of long-lasting exterior latex paint.

you can depend on DOW PLASTICS

DOW

SPENCER KELLOGG

George J. Hutzler has been appointed Manager of Engineering Research. In this newly created position, he will be responsible for the development of new manufacturing processes in the company's vegetable oil operations. He also will direct the pilot plant activities in the new research center being constructed near the Buffalo Airport.

Mr. Hutzler comes to Buffalo from Philadelphia where he was a Research Supervisor and Semi-Works Superintendent at the Rohm and Haas Co.



G. J. Hutzler

NUODEX

Jacques J. Whitfield has been named Manager of the newly formed Stearates Division of Nuodex Products Co., Inc., a subsidiary of Heyden Chemical Corp. It was announced by T. M. O'Neil, Nuodex Vice-President for marketing.

In this capacity, he will be responsible for the sale and market development of the new line of stearates manufactured in the Newark, N.J. plant. Mr. Whitfield was, for sixteen years, Stearate Sales Manager of Sun Chemical Corp.

NATIONAL CAN

Folke W. Anderson has been appointed Assistant Plant Manager of the "Kedzie" plant in Chicago.

He has been Plant Superintendent of this plant for almost 10 years, as he was with Cans, Inc. before acquisition.

NATIONAL ANILINE

Dr. William Howlett Gardner previously with the New Products Div., National Aniline Div., Allied Chemical & Dye Corp., is now attached to the Chemical Sales Dept. of that company.

In this new position, he will be responsible for the preparation of technical literature on the company's new chemicals which include adipic acid, caprolactam monomer isocyanates and other organics. Additionally, he will act as a Technical Representative in the sale and application of company chemicals.



W. H. Gardner

Prior to joining the organization in 1943, Dr. Gardner was Chief of the Chemicals Materials Branch, Conservation Division, War Production Board at Washington.

UNION CARBIDE & CARBON

Dr. T. R. Miller has been appointed Director of the South Charleston Plant Laboratories of Carbide and Carbon Chemicals Co., a Division of Union Carbide and Carbon Corp. according to an announcement by D. B. Benedict, Works Manager of the company. He joined the Company in 1940.

Five changes in the Industrial Chemical sales organization have been announced by E. E. Fogle, Vice-President of the company.

R. C. Boltz has been appointed District Sales Manager of the Newark District. He had held the same position in the Buffalo District.

G. E. Kuehn has been appointed District Sales Manager of the Buffalo District. He had been Assistant District Sales Manager of the New York District.

The following Technical Representatives have been transferred: **G. S. Cooper** to the New York District from the Pittsburgh District; **J. W. Locher** to the Pittsburgh District from the Indianapolis District; and **B. W. Hurley** to the Indianapolis District from the Cincinnati District.

MATTESON-VAN WEY

George L. Kittle is now associated with the company as a sales representative in West Michigan, Toledo, and Detroit. He was formerly associated with Frederic A. Stresen-Reuter, Inc. as technical representative in the mid-west.

That's all it costs to remove the odor from your paint with Maskit #2

- Makes your paint more acceptable to painters and home owners.
- Masks the odor in the can and while paint is being applied . . . as well as during — and after — the drying period.
- Does not affect drying time or color durability.
- Amazingly economical . . . use 1 lb. of Maskit #2 to 150 gallons of paint.

MASKIT #2 is equally effective in paints, lacquer thinners, varnishes and other similar types of products. Order a trial pound today!

\$150 lb.

AROMATIC PRODUCTS, INCORPORATED
 15 EAST 30th STREET, NEW YORK 16
 CHICAGO • DALLAS • MEMPHIS • PITTSBURGH • LOS ANGELES • BOSTON



The witch doctor's magic door

In some parts of Africa, the belief persists that a victim of illness can be cured by being passed through the trunk of a tree. The trunk is split down the middle and pried open to form an archway. The arch functions both as a passage to good health for the patient and as a barrier to the evil spirits associated with sickness.

Modern chemistry continues to produce forest products with characteristics almost as impressive as the witch doctor's magic door. In the field of tall oils, *Unitol* provides the paint industry with an exceptional opportunity to use an inexpensive raw material to replace natural oils.

Unitol grades—S, R, V and G7—have specific uses that mean raw material economies, fewer operating problems, dependable end products for the paint industry. Write for samples, specifications, performance data.



Chemical Sales Department

UNION BAG & PAPER CORPORATION

Woolworth Building, New York 7, N. Y.

ADVANCE SOLVENTS

Dr. Emery Parker has been appointed Director of Research, Plastics Division, and **John F. Herrmann**, Manager of Plastics Field Service, it was announced by Arthur B. Mullaly, President.

Dr. Parker has been with the company since 1944. Much of his past work has resulted in the development of products for the vinyl and protective coatings industries. Many of the company's patents also are the outgrowth of his work.

Mr. Herrmann came to the company from Sunlite Plastics where he was Plant Superintendent. His earlier work was with Dow Chemical Co. and the Goodyear Tire & Rubber Co.

KOPPERS

George W. Naylor, who recently was named Manager, International Department, Chemical Division, has been appointed a Vice President in that Division.

From 1931 to 1934 he was technical representative for the Sherwin-Williams Co. in northern Europe and from 1934 to 1941 Manager of the Far Eastern Division. Following World War II, he became General Manager of manufacturing for the Sun Chemical Corp., In 1948 he became Manager of the Development Section for Koppers Chemical Division. Later he spent two years as Manager of Koppers Washington, D. C., office, returning to Pittsburgh in 1953 as an Assistant Vice President

and Assistant Sales Manager for the Tar Products Division.

Dr. Gilbert Thiessen has been appointed Assistant Manager of the Research Department, it was announced by Dr. E. W. Volkmann, Manager of the Department.

Prior to this appointment, Dr. Thiessen served as Manager of the Laboratory Section of the Department.

Dr. E. E. Donath was appointed to the newly created position of Manager, Technical Appraisal and Planning Section. In addition to these duties Dr. Donath will continue as Manager of the Fuels Processing Section.

SAPOLIN PAINTS

John M. Kaheny has been appointed to the laboratory technical staff, according to an announcement by Richard J. Eckart, Vice-President.

He will work under the direction of Laboratory Director Fred C. Auwarter and will have responsibilities in new product development, research on vehicles and binders of paints based on synthetic resins, processed oils, rubber, and the latest types of resins adapted for use in the latex emulsion field. Mr. Kaheny comes to the company from Kyanize Paints, Inc., Boston, a firm he joined as Technical Director in February, 1953.



J. M.
Kaheny

GLIDDEN

Paul W. Neidhardt has been appointed general trade Sales Manager. He will have full authority for the development of trade sales, including responsibility for advertising, promotion, and merchandising of all consumer paint products.

Mr. Neidhardt will assist company field executives in formulating advertising and sales policy as it concerns local needs in each sales region. He also will advise management and regional directors on all matters pertaining to product pricing, discount policies, marketing, consumer acceptance, and advertising and promotion effectiveness.

CELANESE

Robert J. Polacek has joined the sales development section of the Product Development Department of the Chemical Division. Previously, he was with the Research Division of the market development department of Wyandotte Chemicals Corp.



1. FLATTING EFFECT. Paint authorities agree that sheen control is best accomplished with diatomite—and Dicalite inert pigments are top-quality diatomite.
2. AIDS EMULSION STABILITY and

These Dicalite particles give 7 distinct advantages in Latex and Resin-Emulsion Paints

3. REDUCES "CREAMING" OF EMULSION due to tremendous surface area and high absorptive capacity of Dicalite particles. Polymers "grip" better.
4. INCREASES ADHESION and
5. STRENGTHENS PAINT FILM because of the lattice-like structure formed by interlacing Dicalite particles.
6. BANISHES BLISTERING. Dicalite "lattice" provides microscopic pores to allow escape of moisture behind paint film. Lack of capillary attraction prevents outside moisture from entering.
7. IMPROVES BRUSHING due to proper particle size distribution.

For further information, write to Dicalite Division, Great Lakes Carbon Corporation, 612 So. Flower Street, Los Angeles 17, California

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GLC
GREAT LAKES
Dicalite
DIATOMACEOUS MATERIALS

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YEARS

Alodizing with Alodine® No.1000 **Provides** **INVISIBLE PROTECTION for ALUMINUM**

"Alodine" No. 1000 protects aluminum without changing its appearance. It is a natural for treating aluminum windows, doors, frames and, in fact, any aluminum product when it is desirable to retain the metal's original appearance even under severe service conditions.

"Alodine" 1000 can be applied by immersion, by spraying in a power washer, or even manually.

With "Alodine" 1000, a simple, economical, effective method is now available for providing invisible protection for aluminum and its alloys.



How effectively Alodine No. 1000 protects aluminum extrusions (63S) in salt fog is shown above.

The surface of the bare extrusion (a) is darkened, has lost its new look, and is badly pitted, while the Alodized, unlacquered extrusion (b) has retained its original appearance without pitting or visible corrosion, after 864 hours' exposure to salt spray.

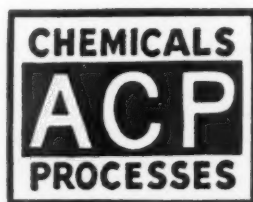
The bare metal extrusion (c) coated with lacquer shows some darkening from general corrosion and some pit-

ting after 1200 hours' exposure to salt spray, though less than on the unlacquered extrusion (a). However, extrusion (d) both Alodized and lacquered is unchanged in appearance with no pitting.

While it is noteworthy that bare metal when merely Alodized has withstood salt spray at least as well as bare metal lacquered, lacquer applied to an Alodized surface provides the utmost in protection and abrasion resistance, and meets the requirements of the mortar test of FHA Circular No. 4.

IF IT'S ALUMINUM, BE SURE IT'S "ALODIZED"

Write for new descriptive folder.



AMERICAN CHEMICAL PAINT COMPANY

Ambler, Penna.

Detroit, Michigan

Niles, California

Windsor, Ontario

DU PONT

Philip C. Olin has been appointed departmental engineer of the Fabrics and Finishes Department, with responsibility for project engineering and construction activities.

He joined the company in 1936 as an industrial engineer at the Philadelphia finishes plant. He was appointed a technical assistant for plant study in 1945, and in 1947 came to Wilmington as an assistant to the director of production of the Finishes Division. Since 1948 he has been divisional engineer of the division.

The Finishes Division has announced the following personnel changes in its sales organization: **John T. Edgerly**, regional Sales Manager, San Francisco region, has been appointed Staff Assistant, Refinish Sales, Wilmington.

J. L. Masterson, regional Sales Manager, Kansas City region, has been appointed to the same position in the San Francisco region.

George H. Berlin, Jr., industrial Sales Manager, San Francisco region, has been appointed regional Sales Manager, Kansas City region.

E. M. Taney, industrial Field Manager, Cleveland region, has been appointed industrial Sales Manager, San Francisco region.

C. A. Moosmann, industrial salesman, Philadelphia region, has been appointed industrial Field Manager, Cleveland region.

SHERWIN-WILLIAMS

Clyde A. Case has been named Central Manager of the Pigment, Color and Chemical Division, it was announced by B. M. Van Cleve, Vice-

President and director of the division. He will direct the division's activities in a 12-state area extending from western Michigan to Florida, and will make his headquarters in Cleveland.

GLIDDEN

Andrew J. Duncan has been named Manager of International Business. He will supervise all activities pertaining to the firm's foreign business operations, including exports and the manufacture and distribution of products overseas.

Field Manager for National Industrial Sales is **George S. Forbes**, who with Thomas N. Armel, General Manager of Industrial Sales, will supervise all phases of the industrial coating business, including railway, aircraft, and marine finishes.

BELDEN & HICKOX

Arthur L. Shirley, Jr., has joined the sales organization at the home office in Cleveland, Ohio. He had previously been Sales Promotion Manager for Minneapolis-Honeywell Regulator Co. in the central region.

O'BRIEN PAINTS

Howard W. Goetz has been appointed Supervisor of the Architectural Finishes Div. of the main laboratories at South Bend, Ind., according to an announcement from John C. Mull, Vice President of Development.

He will supervise all the research and development of architectural finishes and approve or recommend formulas for production of these products.

Prior to his transfer, he was chief chemist in the Baltimore division. He has been working for the White Co. which was purchased by O'Brien in 1945. He was also associated with the Eagle-Picher research laboratories.

EASTERN STATES PAINT

E.S. Hewes is now associated with the company in the Sales Dept. He had been associated with the Reichhold Chemical Co. from 1946 until this year.

HERCULES

Dr. W.D. Thompson has been appointed Sales Manager, miscellaneous paper chemicals, it was announced by R. Rockwell, General Manager, Paper Makers Dept.

He will be responsible for the coordination of the sales and wet-strength resins, wax emulsions, defoamers, and "Aquaapel" the new alkylketene dimer size, to the paper industry.

Dr. Thompson, for the past seven years, has been Manager of the Paper Makers Chemical Research Division.



The advertisement features a large, stylized graphic of a black pigment container or palette. Inside the container, the text "Meeting your Requirements" is written in a cursive font. Below this, the brand name "WITCOBLAK®" is prominently displayed in a bold, sans-serif font. Underneath the brand name, the text "Superior pigment blacks" is followed by a list of product numbers: "No. 32, No. 50, No. 100, Hitone, F-1, F-2, and F-3". At the bottom of the container, a small logo with the letters "WITCO" is visible. To the right of the container, the text "Literature and samples on request" is written. Below the container, the text "35 Years of Growth" is displayed. At the very bottom, the company names "WITCO CHEMICAL COMPANY" and "CONTINENTAL CARBON COMPANY" are listed, followed by the address "122 East 42nd Street, New York 17, N. Y." and a list of cities: Chicago, Amarillo, Boston, Los Angeles, Cleveland, San Francisco, Akron, London and Manchester, England, Atlanta, and Houston.

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WITCOBLAK®

Superior pigment blacks
No. 32, No. 50, No. 100,
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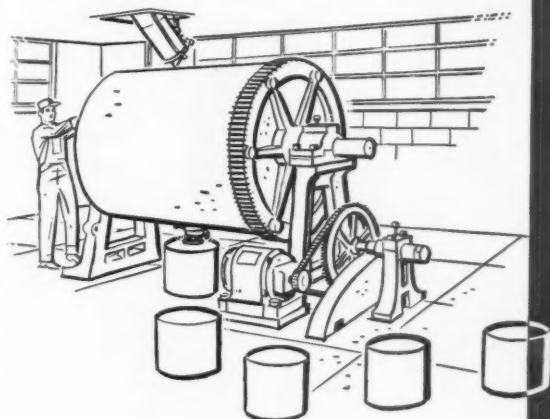
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Highest Quality



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- Color
- Viscosity
- Total solids content
- Flash point (TCC)
- Moisture content
- Acid value
- Miscibility
 - with raw linseed oil
- Miscibility
 - with mineral spirits
- Benzene insoluble content
- Customer's specified tests

Order your next requirement of driers from Harshaw. They are produced and tested at our plant in Gloucester City, N. J. where we have the most modern facilities available. Harshaw Driers are distributed nation-wide through 18 stock points.

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- Lithos
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SOLID DRIERS

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- Linoleate Solids
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PRODUCTION CLUBS

(From page 40)

are: William L. Foy, The Foy Paint Co., President; Carl J. Opp, Interchemical Corp., Vice President; Chester Olsen, Hanna Paint Co., Secretary; Harry A. Pansing, Ander Chemical Co., Treasurer.

The next order of business was the formality of declaring Robert Lipp the official Council Representative. Bill Kentner was made alternate Councilor because of his experience.

The meeting was then turned over to Bill Foy, the Program Chairman. Bill expressed his thanks to the group for electing him President for the coming year. He announced that the next meeting would be a joint affair with the Federation Officers in connection with their spring Council Meeting. Also the Production Problems Committee had secured Jim Foy to talk on, "Paper Work Involved In Manufacture of Paint, etc."

Bill then introduced the speaker of the evening M. C. Londergan, Pigment Department, E. I. DuPont de Nemours Co., who talked on "New Trends in Colored House Paints." The paper emphasized the trend in bright colors in house paints. Consideration was given to color performance in oils, alkyds, and emulsion systems. Exposure results were presented as obtained in Delaware and in Southern California. After a lengthy question and answer period, the meeting was adjourned.

LOS ANGELES

The regular meeting convened at Scully's Restaurant attended by 185 members and guests. The meeting was called to order by President Vern Barrett. Following the introduction of guests for the evening a report was given by Les Houy, Chairman of the Good Fellowship Committee. The minutes of the previous meeting were read by the secretary, Chuck Finegan, and approved as read. In the absence of Ed Campbell, Chairman of the Educational Committee, Vern Barrett related the work which was being done by the Executive Committee in cooperation with the Los Angeles Paint, Varnish and Lacquer Association, in bringing up to date the syllabus of the paint technology course at the Los Angeles City College.

A report was rendered by Vern Barrett concerning the work which is being done by the Technical Committee under the chairmanship of Jack Callaway.

Mention was made that the May meeting was scheduled for the third Wednesday of the month instead of the second in order to facilitate attendance at this meeting by the President,

President-Elect, Secretary, and Treasurer of the Federation of Paint and Varnish Production Clubs. These gentlemen are scheduled to be on the West Coast for attendance at the Pacific Northwest Symposium in May, 1955.

Reference was made to a letter received from the Federation headquarters which stated in effect that all Class "A" or Class "B" who change affiliations need not obtain Federation approval, provided that their new employer is currently listed as a Class "A" member.

Bob Vignolo, Chairman of the Membership Committee, read the names of the applicants for membership. The following applicants were proposed and approved for membership: Bob Roberts, Class "A", Olympic Paint and Varnish Co.; and Howard S. Malby, Class "K" Associate, Celanese Corporation of America.

Vern Barrett informed the membership that the clubs previous president, George Venatta, who is currently a member of the Executive Committee, has changed positions within the company for which he works and is no longer eligible for membership in the Paint and Varnish Production Club. Our local club and the Federation, as a whole, has benefited greatly from the contributions of George Venatta.

Following a brief intermission, Dan Heisler, Program Committee Chairman, introduced Frank Smith, speaker for the evening. Mr. Smith, who is Assistant Technical Manager of the Titanium Pigment Corp., spoke on the subject, "Development of House Paints Pigmented with Titanium Dioxide." He traced briefly the history of the development of white exterior house paint,

(Turn to page 75)

Chats about Finishes

ON THE VALUE OF QUALITY

by G. N. BRUXELLES
Supervisor, Coatings Laboratory
Cellulose Products Research Division



It is axiomatic that appearance is of predominant importance in the merchandising of any product. Style and finish often represent the major sales appeals which affect the customer's choice. It is for this reason that one trend in modern industry is to "put the money where it shows".

Customer satisfaction and the manufacturer's reputation cannot be guaranteed by these factors alone, however. In the case of the finish, for example, showroom sparkle must be teamed with long-term serviceability to form the unbeatable combination that spells quality.

Hercules research on the upgrading of nitrocellulose lacquer finishes has long been based on the principle that quality pays dividends in increased customer satisfaction and increased sales. We want to cooperate with you in the development of top quality nitrocellulose lacquer finishes.

G. N. Bruxelles



Cellulose Products Department
HERCULES POWDER COMPANY

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2. **OTHER USES:** Low cost anti-foam for use in the paper industry. With low retention & no residual odor in the finished product, TRIBUTYL PHOSPHATE also imparts excellent anti-foam properties to water adhesives, inks, casein solutions, textile sizes, detergent solutions, etc.

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1. Good electrical properties.
2. Non-flammable
3. Low temperature flexibility.

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1. Strong solvent & blending power for preparing concentrates of weed killers; 24-D acid, etc. These concentrates can be diluted with kerosene or other oils.

2. An excellent high boiling, solvent for lithographic inks. It will dissolve many constituents usually difficult to put into solution. It is an excellent wetting agent for pigments. Increases adhesion to metal & plastic surfaces.

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OHIO-APEX DIV.

FOOD MACHINERY & CHEMICAL CORPORATION

NITRO, WEST VIRGINIA

PHTHALOCYANINE BLUE

(From page 39)

pigment used in the experiments described in this paper, indicated the definite superiority of hydrocarbons. They, therefore, may be considered as exemplary of a practical use wherein the results of work of the nature described herein may find application. We have found indications that the use of acetate ester solvents such as the butyl and amyl esters, will be advantageous in minimizing the tendency of this copper phthalocyanine pigment to flocculate. The effect of variation in the type of organic solvent medium used, upon the flocculative tendencies of practical paint pigment combinations, should, therefore, bear further investigation and practical usage.

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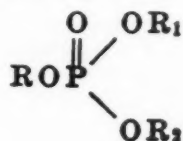
PATENTS

Complete copies of any patents or trade-mark registration reported below may be obtained by sending 50c for each copy desired (to foreign countries \$1.00 per copy) to the publisher.

Removing Coating Films

U. S. Patent 2,704,278. Harry R. Gamrath, St. Louis, Mo., assignor to Monsanto Chemical Company, St. Louis, Mo., a corporation of Delaware.

A process for the removal of paint varnish and lacquer films from surfaces bearing said films comprising applying to said surfaces a film softening amount of a substantially non-flammable fluent alkyl diaryl phosphate ester having the formula



wherein R represents a radical selected from the group consisting of alkyl and alkoxyethyl radicals containing from 1 to 12 carbon atoms and R₁ and R₂ are each selected from the group consisting of phenyl and cresyl radicals, allowing said composition to remain on said surface until said film is loosened, and removing the loosened film.

High Softening Point Resin

U. S. Patent 2,698,841 . . . John F. McKay, Jr., Cranford, N. J., assignor to Standard Oil Development Company, a corporation of Delaware.

A high softening point resin consisting essentially of a 240°-280° C. heat-reaction product of about 100 parts by weight of a non-aromatic unsaturated hydrocarbon resin which is an oleon-diolefin polymerization product obtained by treating a steam cracked petroleum distillate boiling in the range of about 20 to 280° C. in the presence of 0.25 to 2.5% Friedel-Crafts catalyst at a temperature of . . . 100° C. to 1100° C. reacted with about 50 to 100 parts by weight of dicyclopentadiene, said resin reaction product having a substantially higher heat softening point than that of said olefin-diolefin resin prior to reaction with the dicyclopentadiene.

Vinyl Chloride Polymers

U. S. Patent 2,705,226. Alexander Edward Bond, New Malden, England, assignor to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain.

A process for the production of vinyl chloride polymers that compound easily and readily with plasticizers which comprises dispersing vinyl chloride by agitating the same in an aqueous solution containing a salt selected from the group consisting of the alkali metal and ammonium salts of an at least partially esterified polyvinyl alcohol in which part of the hydroxyl groups are esterified by acetic acid and part are esterified by at least one poly-basic acid which contains two carboxyl groups attached to adjacent carbon atoms, and no more than one hydroxyl

group, and which, when unsaturated, is of cis formation, and thereafter polymerizing the thus dispersed vinyl chloride.

Stabilization of Polystyrene

U. S. Patent 2,704,749. Ernest H. Wood, Westfield, N. J. and, James R. Wilkinson, Milwaukee, Wis., assignors to Union Carbide and Carbon Corporation, a corporation of New York.

A composition of matter comprising polystyrene and from 0.1% to 5% by weight of polystyrene of a compound taken from the group consisting of resorcinol dibenzoate and resorcinol disalicylate, said composition being characterized by stability against deterioration upon weathering and exposure to ultraviolet light.

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FAFL is recommended for interior flats, primer-sealers, undercoaters, semi-glosses, cement and stucco paints, and asbestos shingle paints.

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SPECIFICATIONS	
VISCOSITY	V-Y
NON-VOLATILE	30% ± 1%
COLOR	8 Maximum
ACID NUMBER	10 Maximum (on solids)
WEIGHT per gal.	7.3 lbs.
TYPE	Pure drying oil alkyd
USES: Interior flats, primer sealers, enamel undercoaters, semi-glosses, etc.	
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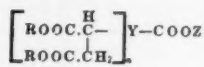
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GRINDING LIQUIDS—MARINE FINISHES—ARCHITECTURAL VEHICLES—INDUSTRIAL VEHICLES

Vinyl Chloride Plasticized With Polycarboxylates

U. S. Patent 2,703,791. John M. Butler, Dayton, Ohio, assignor to Monsanto Chemical Company, St. Louis, Mo., a corporation of Delaware.

A resinous composition comprising a vinyl chloride polymer plasticized with a condensation product having the formula



in which Y is an aliphatic, monoolefinic hydrocarbon residue of from 9 to 23 carbon atoms, R is an alkyl group of from 1 to 8 carbon atoms, Z is a member of the group consisting of hydrogen and R, and *n* is an integer of from 2 to 4.

Pigmented Film-Forming Materials

U. S. Patent 2,701,211. William Ivan Taylor and Selwyn George Hawtin, Spondon, near Derby, England, assignors to British Celanese Limited, a corporation of Great Britain.

Process for the production of a pigmented water-insoluble film-forming substance substantially devoid of water-soluble salts and suitable for spinning into artificial filaments, from a pigmented preparation containing water-

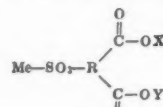
soluble salts, which comprises forming a dough from the salt-containing pigment, a water-insoluble film-forming material having a water imbibition of from about 10% to about 40% at 20° C. and a volatile softening agent for the latter, mechanically working the dough, while evaporating the softening agent to disperse the pigment finely throughout the dough and to break up the pigment particles, continuing the working and evaporation of the softening agent until the latter is substantially all removed and a solid compact intimate mixture of said pigment and said filament-forming material is obtained, and subjecting the solid compact mixture, in such form that no point therein is more than about 0.05 inches from a surface thereof, to an aqueous extraction until the water-soluble salts have been substantially removed.

Aminoplast Resins


U. S. Patent 2,704,750. Lynwood N. Whitehill and James A. Arvin, Homewood, Ill., assignors to The Sherwin-Williams Company, Cleveland, Ohio, a corporation of Ohio.

An essentially anhydrous liquid coating composition soluble in oleoresinous varnishes and insoluble in water which comprises the condensation product of an aldehyde selected from the group consisting of formaldehyde, acetalde-

hyde, butyraldehyde, furfuraldehyde and benzaldehyde and an amine selected from the class consisting of carbamide, polyamino diazines and polyamino triazines characterized by the presence therein of at least two amino groups possessing replaceable hydrogen atoms terminally condensed under aqueous acidic conditions, the mol ratio of the aldehyde to said amino groups being within the range of from 1:2 to 2:1, containing as the essential ingredient therein a catalytic amount but not more than 5% by weight of the condensation product of an ester of a dicarboxylic acid having the formula



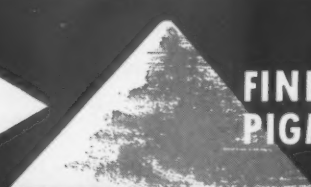
wherein Me is selected from the group consisting of ammonia and salt forming metal ions, R is a saturated aliphatic hydrocarbon group substituted by the sulfonate group on one of the carbon atoms in the positions alpha to with respect to the —COOX and —COOY groups but free from other substituents and X and Y are selected from the group consisting of non-substituted and hydroxyl substituted alkenyl, alkyl, aryl and alkaryl groups containing from 1 to 12 carbon atoms.



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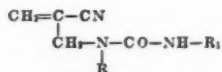


QUALITY
PRODUCTS

Acrylonitrile Polymers

U. S. Patent 2,704,751. Harry W. Coover, Jr., and Joseph B. Dickey, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N. Y., a corporation of New Jersey.

An alpha-ureidomethyl acrylonitrile represented by the general structural formula:



wherein R represents a member selected from the group consisting of a hydrogen atom and the group $-\text{CO}-\text{NH}-\text{R}_1$, and R_1 represents a member selected from the group consisting of an atom of hydrogen, an alkyl group containing from 1 to 4 carbon atoms, a phenyl group and a tolyl group.

Coating Composition

U. S. Patent 2,703,765. Le Verne Kenneth Osdal, Springfield, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware.

A coating composition comprising (1) the resinous condensation product of 2,2', diphenylol propane and a halohydrin, (2) an amine resin selected from the group consisting of butylated urea/formaldehyde resins, melamine formaldehyde resins, and n-propanol modified urea/formaldehyde resins, and (3) a substituted benzoic acid curing agent selected from the group consisting of salicylic acid, 5-chloro salicylic acid and acetyl salicylic acid.

Rust Inhibitive Aluminum Pigment

U. S. Patent 2,701,772. Gordon M. Babcock, Plainfield, N. J., and Francis B. Rethwisch, Louisville, Ky., assignors to Reynolds Metals Company, Richmond, Va., a corporation of Delaware.

A rust inhibitive aluminum pigment paint comprising aluminum flake pigment; strontium chromate, said chromate being used in the variable ratio of 1 part chromate to 4 parts aluminum pigment, to 1 part chromate to 1 part aluminum pigment; and a bodied resin-oil vehicle in an amount sufficient to produce a brushable paint.

Coating Containers

U. S. Patent 2,699,413. George William Seagren, Pittsburgh, and George Lawrence Reymann, Sewickley, Pa., assignors to Stoner-Mudge, Inc., Pittsburgh, Pa., a corporation of Pennsylvania.

A liquid coating composition adapted for direct application to sheet steel in the manufacture of containers and closures therefor consisting essentially of a resinous composition dissolved in a volatile organic solvent, said resinous

composition being composed essentially of two resins, resin A and resin B, and from 5 to 20% by weight of orthophosphoric acid based on the total weight of said resins, resin A being a polyepoxide polyglycidyl ether of bisphenol having a molecular weight of 1500 to 7200, and resin B being an alkali catalyzed condensation product of formaldehyde and a phenol reactant of the group consisting of 2,3 dialkyl phenol, 2,5 dialkyl phenol, 3,4 dialkyl phenol, 3,5 dialkyl phenol, 2 monoalkyl phenol, 4 monoalkyl phenol, and mixtures thereof, where the alkyl group has from one to five carbon atoms, condensed to the organic solvent-soluble condition, the proportion by weight of resin A to resin B varying from 50% resin A and 50% resin B to 80% resin A and 20% resin B, and the

proportion by weight of said resinous composition in said liquid coating composition varying from 25 to 40%.

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PRODUCTION CLUBS

(From page 69)

touching upon the introduction of titanium-barium pigment and the introduction of exterior primers, and the use of free-chalking anatase titanium dioxide. Mr. Smith mentioned that an important forward advancement in the formulation of exterior house paints was brought about as a result of the curtailment of linseed oil during the past war. This shortage in linseed oil resulted in an alteration of the proportion of raw and bodied linseed oil with a corresponding increase in the bodied oil content.

In summary, Mr. Smith stated that three important advancements in the history of exterior white house paint are as follows: (1) restricting reactive pigment in the formulation within the range of 35-60% (2) decreasing the proportion of raw oil and increasing the bodied oil content (3) proportioning the amount of rutile to anatase titanium dioxide. He stated that a very excellent, durable and controlled chalking house paint could be formulated with varying amounts of rutile and anatase titanium dioxide and extender pigments with a vehicle composed of 25% raw linseed oil, 15% bodied linseed oil, 35% long oil alkyds resin, and 25% chlorinated paraffin resin. In conclusion, to improve the blister resistance of exterior house paint, zinc oxide should be eliminated from the formulation.

NORTHWESTERN

The April meeting, held at the Town and Country Club was called to order by President Elmer Stark with 59 members and guests present.

Mert Hilke, Chairman of the Program Committee, announced that the May 6th meeting would feature a film by the Titanium Pigment Corp.

John Rouse, Chairman of the Membership Committee, gave the first reading of Walter E. Lox of Foreman Ford Co. for Class "A" membership and of H. S. Dillon of Archer Daniels-Midland for Class "B" membership. The final reading for Dr. Wouter Bosch was given and he was voted into Class "B" membership.

Jim Stanton, Chairman of the 1955 Technical Committee, reported that work was progressing satisfactorily and that the paper would be completed by July.

President Stark read a letter from R. Jerabek, Chairman of the Open Forum Committee, showing the poor response that he got in his request to all club members for suggestions on an open forum topic. This was discussed on the floor but no action was taken.

Lowell Wood, Chairman of the Golf Party Committee, announced that the Golf Party would be held June 10 at South View Country Club.

President Stark read a letter from the Dallas Production Club and the Los Angeles Production Club, requesting approval of new changes in their respective club boundaries. This request was put in the form of a vote and passed and approved by the membership.

Mert Hilke introduced the guests of the evening, C. Homer Flynn, Executive Secretary, and Milton A. Glaser, Treasurer of the Federation.

C. Homer Flynn gave a brief talk on the activities of the Federation. He explained a new change in the handling of club membership. He discussed the Paint Short Course at North Dakota State College which he feels is a very

good thing for the paint industry. He said he felt that the raw material people were taking more advantage of the course than the paint industry itself. Mr. Flynn announced that the Mattiello lecturer for the 1955 Federation Convention would be Doctor Herman Mark head of the Polymer Research Institute at the Polytechnic Institute, Brooklyn, N.Y.

Milton Glaser spoke on the educational activities of the Federation stressing the value each production club would receive by participating in these events. He listed all the colleges that give paint courses and mentioned some of the projects being carried on at these schools. He mentioned that the results obtained from the Federations "Pure Compound Project" were being compiled and will be published.

(Turn to page 77)

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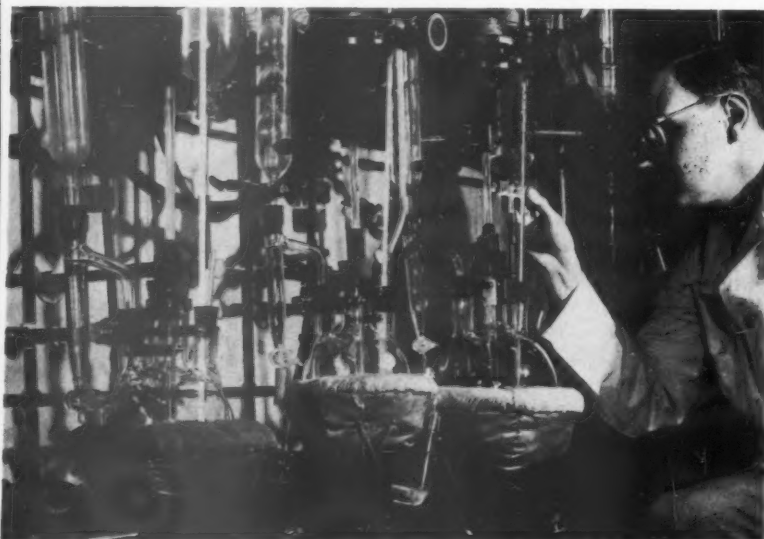
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DRYING OILS

(Turn to page 29)

The greater alkali resistance and water resistance characteristics of tung oil vehicles may be ascribed to the initial formation of cycloperoxides and their polymeric byproducts. The "softer" oils form linear hydroperoxides which tend to decompose into small soluble molecules.



Reaction vessels used in the preparation of varnishes and alkyds

Other Variables

Despite the lack of emphasis in this discussion on the non-oxidative phases of drying, it must be borne in mind that the air drying of oils or resins is not simply an oxidative process; many polymerization reactions are also evident. A properly dried film is in some degree insoluble, infusible, and chemically resistant. But regardless how well defined the polymerization reactions may be, they occur only after the initial absorption of oxygen and never in the absence of oxygen.

It is also well known that drying and dried films possess many colloidal characteristics; they increase in viscosity, swell in organic solvents, and demonstrate the Tyndall effect. While such colloidal effects are probably only the physical manifestations of polymeric reactions, still a pure glyceride never exhibits colloidal properties in the absence of oxygen.

Stereoisomerism also plays an important role. Trans forms are known to be more stable and more resistant to oxidation than the cis forms. The phenomenon of "greening" or "after-tack" is attributed by some to the presence of trans structures in synthetically derived conjugated drying oils.

The problem is further complicated by the fact that the stage at which polymers first appear and enter into the oxidation is unknown. Because many fatty materials polymerize and then dis-

play after-tack," it is thought by many that the polymeric structures are formed quite early. The "after-tack" is then believed to be due to the low molecular weight chain scission products plasticizing the polymers.

Progress in this field is bound to be slow because of the extreme difficulty involved in isolating and identifying the many intermediate products formed during oxidation.

Since many of the observed changes in drying films are consequences of the secondary reactions of hydroperoxides, trans-annular-peroxides, and cycloperoxides, progress in drying mechanisms will depend on the ability of chemists to unravel all the possible simultaneous reaction sequences which can occur in a drying oil film.

By use of isotopic tracer techniques coupled with modern micro-fractionation techniques, success should not be too far into the future.

(From page 75)

Mr. Flynn then gave a brief outline of Jim Kortum's activities in the Federation and in Production Clubs. Kortum was President of the Federation in 1931-1932 before coming to the Northwestern Paint and Varnish Production Club. Mr. Flynn presented the Certificate of Honorary Membership in the Federation to Kortum. Jim thanked the Federation officers and club members and spoke briefly on the joys and tribulations of being a paint salesman.

Ed Erickson then presented Kortum with a gift certificate for a pair of waders for fishing, a gift from the club.

CHICAGO

The meeting was held on April 4, at the Furniture Club of America. 148 members and guests were present.

The meeting was called to order by President Ashley and the minutes of the March meeting were approved as read.

For the Membership Committee, F. Levy read the following name for first reading before the club: Class "A"—Christian W. Johnston, John Steen Varnish Co.

On second reading, the following were elected to membership by a unanimous ballot: "Class "A"—Robert C. Andrews, Nubian Industrial Div., The Glidden Co.; and Frank J. Gaudio, T. F. Washburn Co.

President Ashley told the club that Fred Adams has been ill.

A. E. Counter, Representative to the Chicago Technical Societies Council reported on activities.

President Ashley reported for the Standards and Methods of Tests Committee and stated that it is gaining momentum.

President Ashley then called on the various chairmen of the Technical Committees through the Technical Coordinating leader L. E. Ludwig. All committees reported activity and the club will probably have a paper "Painting of Wet Concrete Surfaces" for the convention.

Under new business, the changing of the boundaries of the Dallas Paint and Varnish Production Club and the Los Angeles Paint and Varnish Production Club were discussed and approved.

M. A. Glaser read a resolution to create a Clarence W. Clark Memorial Award. A motion was made to instruct our Council Representative to bring this matter before the Federation at the next Council meeting. The motion was passed unanimously.

The meeting was then turned over to Program Chairman R. R. Bruhn who introduced the program, a panel discussion on "Coordination of Laboratory, Production and Management." The moderator was W. T. Walton,

Paint Research Associates. Other members of the Panel were: E. Murphy, Manager of the Montgomery Ward Paint Factory, George Nichols, Technical Director of Sears Roebuck Paint and Varnish Factories, Harold Spitzer, Director of Development Laboratories of Sherwin-Williams, and Earl Miles, Regional Director of Nubian Industrial Div., Glidden Co.

HOUSTON

The Annual Southwestern Paint Convention of the Houston & Dallas Paint & Varnish Production Clubs on May 6 and 7, again will offer a hall of displays. The convention will be held at the Shamrock Hotel.

The display space is limited to the top of one 3' x 6' banquet table, and the charge is a nominal \$15.00. The low cost and space limitations make it possible to put a story across without

elaborate preparation and expense. Space will be assigned in such a manner that it won't be necessary to sell a competitor, while selling a customer.

Check and reservation can be mailed to: Joe Rench, P. O. Box 9145, Houston, Texas.

KANSAS CITY

The meeting was held on April 14, at the Pickwick Hotel in Kansas City, Mo. Thirty-five members and guests were present.

Mr. Chandlee, Treasurer, made two reports; one concerning the joint meeting with the St. Louis Paint and Varnish Production Club which was held March 12 in Kansas City. Although a final accounting has not been made, the balance is favorable. Mr. Chandlee pointed out that Mr. Willard Vasterling had done most of the work connected with this meeting and that

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he deserved high praise. In a general report, Mr. Chandlee revealed that club finances were in a very healthy state.

President Wormser discussed the proposition of the Dallas Club to expand its boundaries. Mr. Griswold who is chairman of the committee which investigated this proposition, stated that he had discussed the matter with several manufacturers in Oklahoma and that they were more inclined to lean toward Dallas and suggested that soon they might start a club of their own. President Wormser stated that he cast an affirmative vote to allow the Dallas Club to expand. President Wormser said that during the February meeting, at which Federation Officials were guests, we had been requested to ask for the presence of our council representative at the council meetings; he

also said that Russ Griswold had consented to act as an alternate council representative and would attend in case Mr. Vasterling was unable to do so. The next council meeting is April 30, and Mr. Vasterling had asked President Wormser for suggestions for problems for discussion.

Cargill, Inc. has offered a scholarship to the Kansas City Paint and Varnish Production Club and will sponsor one individual at the Fifth Advanced Paint Refresher Course at North Dakota Agricultural College. The plan offered to the membership was that the secretary should write to responsible officials in the companies who are members and ask for the designation of a man who would like to take such a course. When these individuals are named, a drawing will be held at the May 14, meeting to determine the

winner. Eligibility will require either attendance at the beginner's course at the college in the paint course or two year's experience in a paint laboratory.

Mr. Oliver asked whether the students at Rolla would be interested in such a scholarship or would be eligible. It was the opinion of some members that these students would not be eligible. Upon a motion from Mr. Griswold to accept or adopt the plan presented, the motion was seconded and carried unanimously. The secretary was empowered to write the necessary letters to the companies regarding this scholarship.

Mr. Niewrzal reported for the Technical Committee. The Technical Committee has been active and has completed the second round of the sag tests. The sags have been measured and the data tabulated. This information has been given to Al Kimmel of the Tnemec Co. who is preparing statistical data. This information should be ready in a week. At that time the Technical Committee will meet and discuss a future move.

Mr. Niewrzal said that in view of the fact that Mr. Warner of the Cook Paint and Varnish Co. proposed this sag test initially and because he has more background experience than any of the other members on the committee concerning this test, he will be asked to write the paper and present it at the Annual Meeting in October. There was some question about Mr. Warner's eligibility to present this paper inasmuch as he is not a member of the club. Mr. Hancock said that the last paper prepared by the club was presented by a man who was not a member. With such a precedent already established, Mr. Niewrzal considered the matter settled. There was no dissenting opinion.

In reporting for the Membership Committee, Mr. Leslie, Chairman, stated that the National Federation desires a membership drive among all of the clubs. It was pointed out that among all of the clubs, the Kansas City Club is the only one that does not have any Class "B" memberships. There was discussion on this point and individuals and companies were named who were eligible under this classification. On a show of hands, it was indicated that the Club Membership Committee should ask them to become members.

In the matter of individual memberships, Mr. Leslie said that the Cook Paint and Varnish Co. was going to raise their number from three to six and that several other local manufacturers were also going to be asked to increase their membership. Upon a further report, Mr. Leslie read the names of three proposed members whose applications would be forwarded to the Federation Secretary. They are Charles

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Griswold of the Dura Kote Co.; and Frank Harris and A. G. Walker of the Cook Paint and Varnish Co.

In the absence of Mr. Haas, Chairman of the Educational Committee, the Secretary read his report. Mr. Haas had prepared a complete list of speakers for the Paint Technology Course at the University of Missouri, School of Mines and Metallurgy, Rolla, Mo.

The following is a completed list of speakers:

Varnishes: composition, manufacture and uses, March 10th, Walter Groves, Price Varnish Co., St. Louis, Mo.

Surface Preparation: March 24th, Dr. F. C. Weber, Jr., Phelan-Faust Paint Mfg. Co., St. Louis, Mo.

Water and Emulsion Paints: April 7th, Dr. F. C. Weber, Jr., Phelan-Faust Paint Mfg. Co., St. Louis, Mo.

Corrosion: April 19th, Albert L. Kimmel, Tnemec Corp., Kansas City, Mo.

Cellulosic Polymers: April 21st, Rufus Wint, Hercules Powder Co., Wilmington, Del.

Industrial Finishes: April 28th, William Thies, Cook Paint & Varnish Co., Kansas City, Mo.

Trade Sales Paints: May 10th, Edward Zimmer, Pratt & Lambert, Inc., Buffalo, N.Y.

Test Methods: May 12th, Herbert M. Gaarder, Beckman Instruments, Inc., Chicago, Ill.

At the conclusion of the business program, Mr. Gregg of the Advance Solvents and Chemical Corp. presented a paper entitled "Zirco Drier Catalyst and the Paint Formulators." He sketched the temperamental nature of zirconium metal in its early stages of research. Apparently the difficulties with early refining method is safe and the usage of metal is common and is increasing. It is particularly useful to the Atomic Energy Commission, television, radar and now the paint and varnish industry. Zirconium is not an active drier nor an auxiliary drier but has a true synergistic action in that it activates cobalt and manganese.

Mr. Gregg sketched the relationship of the various drier metals and their replacement or reduction in content with zirconium catalyst. Panels were exhibited showing house paint systems, proprietary gloss enamels with addition of zirconium catalyst, the use of zirconium catalyst in specification varnish, ready mixed aluminum and industrial finishes with emphasis on the present trend in the automobile industry to the pastel shades. These pastel shades have been successful because of the use of Zirco Drier Catalyst. Zirco catalyst is also effective in refrigerator whites and in metal decorating finishes.

Use of Pentaerythritol Discussed at Symposium

An informal symposium on the use of pentaerythritol in the manufacture of synthetic coating vehicles was held April 27 at the Central Manufacturer's Club, Chicago. Delaware Chemicals, Inc., Staten Island, N. Y., was host at the affair.

The symposium was the second in a series to be sponsored from time to time as a service to the protective coatings industry.

The panelists were Dr. Wouter Bosch, Chairman, Paint Department, School of Chemistry, North Dakota State College; Fred Byerly, Sales Manager, Delaware Chem-

icals, Inc.; Jack Greenfield, head of research program for the National Tung Oil Marketing Cooperative, Inc.; and George Spiller, Vice President, Delaware Chemicals, Inc.

Dr. K. S. Gibson Retires

Dr. Kasson S. Gibson, Chief of the Photometry and Colorimetry Section, Division of Optics and Metrology, of the National Bureau of Standards, has announced his retirement.

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COLD CUT

Gallons	Pounds	
17.3	143	Neville LX-685, 70% Solution
20	162	Bodied Linseed Oil (2-5 visc.)
18.6	119	Mineral Spirits
	1.33	6% Cobalt Naphthenate
56	425.33	

Method of Preparation:
Blend together with good agitation.

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COOK

Gallons	Pounds	
	100	Neville LX-685, 135
10	78	China Wood Oil
15	116	Alkali Refined Linseed Oil
40	255	Mineral Spirits
	1.6	6% Cobalt Naphthenate
	2.4	24% Lead Naphthenate
	0.4	6% Manganese Naphthenate
74	553.4	

Method of Preparation:
Body combined oils at 585°F., check with LX-685, 135 Resin, reduce, and add driers.

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CALENDAR OF EVENTS



May 6-7. Southwestern Paint Convention of the Dallas and Houston Paint and Varnish Production Clubs. Shamrock Hotel, Houston, Tex.

May 13-14. 8th Annual Convention of Pacific Northwest Paint and Varnish Production Club, Gaffney's Lake Wilderness Resort, Seattle, Wash.

June 26-July 1. ASTM Annual Meeting, Chalfonte-Haddon Hall, Atlantic City, N. J.

Sept. 11-16. Fall Meeting of Div. of Paint, Plastics and Printing Ink Chemistry, ACS, Minneapolis, Minn.

Production Club Meetings

Baltimore, 2nd Friday, Park Plaza Hotel.

Chicago, 1st Monday, Furniture Mart.

C.D.I.C., 2nd Monday.

Cincinnati — Oct., Dec., Mar., May, Hotel Alms.

Dayton — Nov., Feb., April, Suttmillers.

Indianapolis — Sept., Claypoll Hotel.

Columbus — Jan., June, Fort Hayes Hotel.

Cleveland, 3rd Friday, Harvey Restaurant.

Dallas, 2nd Thursday, No Fixed Place.

Detroit, 4th Tuesday, Rackham Building.

Golden Gate, 3rd Monday, El Jardin Restaurant, San Francisco.

Houston, 2nd Tuesday, College Inn.

Kansas City, 2nd Thursday, Pickwick Hotel.

Los Angeles, 2nd Wednesday, Scully's Cafe.

Louisville, 3rd Wednesday, Seelbach Hotel.

Montreal, 1st Wednesday, Queen's Hotel.

New England, 3rd Thursday, University Club, Boston.

New York, 1st Thursday, Brass Rail, 100 Park Ave.

Northwestern, 1st Friday, St. Paul Town and Country Club.

Pacific Northwest, Annual Meetings Only.

Philadelphia, 3rd Wednesday, Engineer's Club.

Pittsburgh, 1st Monday, Fort Pitt Hotel.

Rocky Mountain, 2nd Wednesday.

St. Louis, 3rd Tuesday, Forest Park Hotel.

Southern, Annual Meetings Only.

Toronto, 3rd Monday, Diana Sweets, Ltd.

Western New York, 1st Monday 40-8 Club, Buffalo.

TECHNICAL Bulletins

THICKENING AGENTS

Minerals and Chemicals Corporation of America, Metuchen, N. J., has published technical data sheet, SD-29, on "Permagel," "Attasorb," and "Attasol," as thickening, gelling and suspending agents for organic aqueous systems.

Under "Organic Systems," the data sheet discusses stable gels, control of gel properties, water-resistance characteristics, polar and non-polar liquids, suggested quantities of ingredients, dispersing procedure, suggested dispersion equipment organic liquids which have been gelled with colloidal grades of Attapulugus Fullers earth, and suggested surface active agents.

Under "Aqueous Systems," the data sheet discusses control of gel properties, stability to electrolytes, suggested quantities of ingredients, dispersing procedure, suggested dispersion equipment, typical dispersing agents, and typical flocculating agents.

PETROLEUM RESINS

The Refining Sales Division of Kerr-McGee Oil Industries, Inc., Kerr-McGee Building, Oklahoma City 2, Okla., has issued a brochure on "Kermac Resin 641." General characteristics such as uniformity, purity, non-gelling tendencies, weatherability, inertness and com-

patibility are listed. Also discussed are "Kermac Resin 640," "Kermac Resin 625," and "Kermac Oil 650."

COLOR INFORMATION BOOK

A 60-page comprehensive study, detailing, all chemical and physical properties and uses of Dry Colors in the paint, lacquer, and varnish industry. Included are complete color charts for quick and easy reference in which all data may be easily and accurately located. A limited quantity is still available. Copy will be mailed on request to H. Kohnstamm & Co., Inc., 89 Park Place, New York 7, N. Y.

PAINT FOR STEEL

Specifications for paints have been published by the Steel Structures Painting Council, 4400 Fifth Ave., Pittsburgh 13, Pa.

Outlined are composition and performance requirements for paints and coatings that will result in satisfactory performance on steel structures in various services and exposures. The Council does not want to duplicate already existing specifications which are available and for that reason, it has revised only unavailable specifications and reissued them along with its own.

Twenty paint specifications have been issued, including 12 primers for structural steel, a cold applied asphalt mastic coating, and 13 intermediate and finish coat paints. Oil base, phenolic, alkyd, and vinyl paints are included.

The specifications are published in a 96-page booklet and may be



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purchased from the Council for \$1.50.

ROTARY HAND PUMPS

The complete line of Blackmer Rotary Hand Pumps is described in a 4-page illustrated bulletin, which shows the basic styles as well as accessories for various applications.

The text gives a detailed discussion of the full line including outstanding performance features, application information and other pertinent data. Sales Dept., Blackmer Pump Co., 1809 Century, S. W., Grand Rapid, Mich. Ask for Bulletin 320.

VEHICLES

Two new glazing and calking vehicles, called the "Admarines," the result of a survey of the glazing and calking compound industry conducted last year by the company, are described in Technical Bulletin 103. The bulletin also contains suggested formulations for a gun calk and a glazing compound. Copies may be obtained from Archer-Daniels-Midland Co., 700 Investors Building, Minneapolis 2, Minn.

FLOOR TRUCKS

The Hamilton Caster & Mfg. Co. offers a 64-page catalog, illustrating and describing the firm's complete line of platform trucks, two-wheel hand trucks, shelf and tray trucks, box trucks, wagon trucks, skids, dollies, etc. for every industrial and commercial use.

Included are full technical data and specifications on the line, together with a special section illustrating available accessories, body styles and superstructures.

A copy of the catalog, No. 100, may be obtained from the company at 1700 Dixie Highway, Hamilton, Ohio.

STEEL PAINTING MANUAL

The second of two volumes of the "Steel Structures Painting Manual" has been published by the Steel Structures Painting Council, 4400 Fifth Ave., Pittsburgh 13, Pa.

The new volume, called "Systems and Specifications," released after four years of preparation, contains very specific recommendations on painting a tremendous variety of steel structures and

surfaces in various exposures. In addition to guides and indexes of recommended painting schemes, the volume includes complete specifications for surface preparation, pretreatment, paint application, paints, and paint systems.

"Systems and Specifications" consists of 300 pages, case bound in leatherette with hard covers. Copies may be ordered from the Council at \$6.00 each, postage paid.

LACQUERS, PLASTICIZERS

A 40-page bulletin offering latest laboratory findings covers four film-forming lacquer plasticizers designated as "Archer 250," "ADM-

100 Oil," "ADM-150 Oil," and "SL-200." In addition to including new lacquer formulations, among them a metal primer surfacer, the data include material from several earlier technical bulletins brought up-to-date.

A section of the brochure describes a fifth product, an epoxy-type vinyl resin plasticizer, "Admex 710."


The booklet, Technical Bulletin No. 76-A, embraces specifications, characteristics, properties, formulations, applications, and finishing schedules. Copies may be had at by writing to Archer-Daniels-Midland Co., 700 Investors Building, Minneapolis 2, Minn.

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JACKETED AUTOCLAVE

A new 10-gallon jacketed pilot autoclave is illustrated and described in a data sheet offered by The Patterson-Kelley Co., Inc., East Stroudsburg, Pa.

Besides descriptive material, the sheet lists specifications on the jacket, top cover, agitator drive, stuffing box and the autoclave itself.

Also included are two photographs showing front and rear views of the unit, and a large labeled line drawing.

POLYVINYL ACETATE

Four standard polyvinyl acetate polymers, and four special polymers with unusual properties are described in a 4-page brochure, E-12, available from the Dewey and Almy Chemical Co., division of W. R. Grace & Co., Cambridge 40, Mass., Dept. 12A.

The booklet describes the characteristics of the emulsions, tells about special features and typical end uses and discusses polymers versus copolymers. A comparison chart also lists total solids, viscosity, blocking temperature, particle size, etc.

HAND PUMPS

Bulletin 320 describes the complete line of Blackmer rotary hand pumps as well as accessories for various applications.

The text gives a detailed discussion of the full line including performance features, application information and other pertinent data. The 4-page bulletin is illustrated. Sales Department, Blackmer Pump Co., 1809 Century, S. W., Grand Rapid, Mich.

FLAT ALKYDYS

Farnow, Inc., 4-80 47th Rd., Long Island City 1, N.Y., has released a brochure on "FAFL," the alkyd for flats. The booklet gives technical data on the vehicle and a variety of suggested formulations for alkyd flat paints in white and colors.

Information is listed on the following specifications: viscosity; color; acid number; weight per gallon; non volatile; and type.

ASTM SUPPLEMENTS

The 1954 supplements to the book of ASTM standards has been issued by the American Society

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WANTED—man experienced in the testing and evaluation of raw materials, dyes, pigments, extenders, resins and varnishes used in the graphic arts industry. Box 512.

for Testing Materials, 1916 Race St., Philadelphia 3, Pa. The supplements cover seven parts and are available at \$3.50 per part.

Part 4, consisting of 160 pages, includes 28 Standards covering pigments; drying oils; paint driers and thinners; shellac and varnish; lacquer and lacquer materials; traffic paint (crushing resistance of glass spheres); printing inks (finesness of grind); general paint tests; paint weathering tests; naval stores; wood; wood preservatives; cellulose and cellulose derivatives; wax polishes; tests of building constructions; and fire tests.

STABILIZERS

Advance Solvents & Chemical Corp., 245 Fifth Ave., New York 16, N.Y., has put out technical data sheets on the following stabilizers:

"Advastab 50—LT," a relatively non-toxic tin stabilizer used in vinyl compounds. Sheet lists specifications; toxicity; and recommendations.

"Advastab X30—15," an experimental organic zinc compound for low cost non-sulfur staining applications. Sheet lists specifications; and recommendations for calendered stock and plastisol formulations.

"Advastab X23—74," an experimental one-package liquid barium-cadmium stabilizer developed particularly for the copolymer grade resin. Specifications and recommendations are listed.

"Advastab T—72," an organotin stabilizer. Listed are specifications; rigid formulations; plastisols; and light stability.

"Advastab BA—13P," a complex organic barium compound designed for the heat and light stabilization of vinyl compounds. Specifications and recommendations for calendering or extrusion and plastisol formulations are given.

ITACONIC ACID

A 20-page, paper bound, index-type technical bulletin, No. 82, outlining the uses and properties of itaconic acid, has been published by Chas. Pfizer & Co., Inc., Chemical Sales Div., 640 Flushing Ave., Brooklyn 6, N.Y. Charts, molecular structure, reactions, polymerization, patents and packaging and shipping data are included.

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ISOPROPANOL

A 16-page technical booklet, F-8731, on isopropanol has been released by Carbide and Carbon Chemicals Co., a Division of Union Carbide and Carbon Corp., 30 E. 42nd St., New York 17, N. Y.

It has been prepared for chemists, engineers, purchasing agents, and production and laboratory personnel. It contains information on the uses, physical and physiological properties, shipping data, specifications, and constant-boiling mixtures of isopropanol. There are thirteen graphs on vapor pressures, specific gravities, freezing points, viscosities, and other important physical properties for easy reference.

BRITISH COATING RESINS

For the first time a comprehensive index of British surface coating resins has been compiled.

It gives in 14 tables the basic information on all the British-made surface coating resins available to the paint, printing ink and allied trades. The resins—733 in all—have been classified according to type. Within each of the 14 classifications they have been listed in alphabetical order by trade name. There is a list of all the producers contributing and, for easy reference, indexes both to producers and to trade names.

The 52-page booklet is available from the British Plastics Federation, 47, Piccadilly, London, W.1.,

or the Surface Coating Synthetic Resin Manufacturers Assn., 79-80, High Holborn, London, WC.1., price 45c (post free).

MASONRY PAINTING

A do-it-yourself booklet on masonry painting is made available by The Goodyear Tire & Rubber Company's Chemical Division, Akron 16, Ohio.

The 12-page booklet, entitled "Paint Magic For Masonry," explains in detail seven basic steps to follow whenever painting masonry surfaces such as asbestos shingles, stucco, brick or block. Trouble-saving suggestions on paint selection and application are also covered in the illustrated literature.

SOYBEAN BLUE BOOK

The 1955 edition of the "Soybean Blue Book," has assembled the latest available statistics on production, prices and utilization of soybeans, meal and oil. There are directories of soybean processors, oil refiners, and manufacturers using soy products in their operations, as well as firms offering their services and products to the industry.

Included in the 160-page book is a list and descriptions of most U. S. soybean varieties now in production and a map showing recommended varieties for most soybean production areas.

The book is available at \$3 per copy from the American Soybean Association, Hudson, Iowa.

FEDERATION YEAR BOOK

The 1955 Year Book of the Federation of Paint and Varnish Production Clubs, containing 160 pages, lists: A complete roster of each of the Federation's 24 Constituent Clubs; An alphabetical list of the 3460 members who represent the production and technological departments of more than 1200 companies engaged in the manufacture of protective and decorative coatings; The officers, committees, and Council members of the Federation for 1954-55; The Constitution, By-Laws, and duties of the various Federation committees.

Copies, at \$1.50, may be obtained from the Federation of Paint and Varnish Production Clubs, 121 South Broad St., Philadelphia 7, Pa.



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COLLOIDAL SILICA

"CAB-O-SIL," a new colloidal silica for use in the paint industry, is described in Bulletin No. CPai-2 issued by Godfrey L. Cabot, Inc., White Pigments Div., Boston 10, Mass.

The bulletin gives a general description; chemical and physical properties; summaries of the product used as an antissettling agent and for the modification of flow properties; as a transparent extender; and as an emulsion stabilizer.

PAINT SPECIFICATIONS

"Paint Systems Specifications" has been published by the Steel Structures Painting Council, 4400 Fifth Ave., Pittsburgh 13, Pa. after four years work on the project.

The specifications permit the use of a single number in place of pages of detailed requirements since specification numbers are used to order standard cleaning and painting jobs.

Alternates, listed in the specification, cover situations such as special cleaning, different finishes, more or less coats of paint, etc., for which the standard systems are not completely suited. By reference to other specifications for surface preparation, pretreating, applying paint, primers, intermediate and finish paints and coatings, the systems are concise. But all special requirements which make for good painting, such as dry film thickness, compatibility, drying, etc., are stipulated.

The nine specifications, printed in a booklet of 76 pages, may be purchased from the Council for \$1.50.

PAINT BULKING VALUES

"Bulking Values of Selected Raw Materials for Paint and Related Products and Bulking Conversion Tables," has been issued as Circular 768 by the Scientific Section, National Paint, Varnish and Lacquer Association, Inc., Washington, D.C. Covered under bulking values of selected raw materials for paint and related products at 77 F. are: pigments; oils; solvents; resins and other filmogens; and plasticizers.

The 15-page booklet was written by G.G. Sward.

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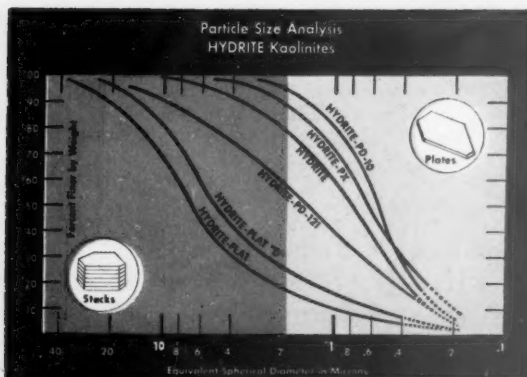
The curve at the right is typical of those obtained when the different grades of HYDRITE Kaolinite are used in various PVAc formulations. Displacement of this curve along the vertical axis depends on several factors. These include the PVC level, the amount and type of thickener used, the individual PVAc emulsion used and the effective water demand of the kaolinite as influenced by the amount and type of dispersing agents used.

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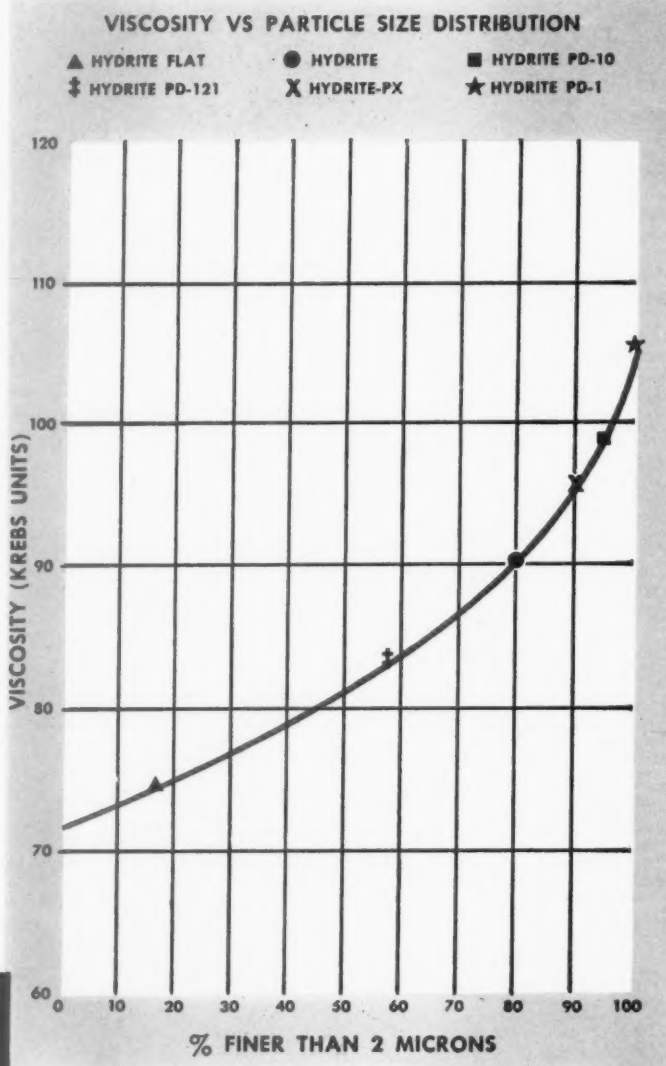
These are a few of the reasons why HYDRITE Kaolinites are being used in increasingly large quantities by manufacturers of PVAc paints.

Technical Service Bulletin TSBH-12 giving further details is being prepared.

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